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Authoritative European research in audiovisual aids to learning is cataloged and summarized for the first time in this publication. The period covered is 1945 to 1963. Items are arranged by reference numbers which are based on 10 subject catagories: films, still projected media, non-projected media, museums, perception, radio, discs and tape recordings, television, teaching machines, and miscellaneous. Each abstract gives the purpose, procedure, and conclusions of a particular study, as well as its author, title (in language of origin and in English), reference number, source, publication date, page count, and country of origin. The scope and plan of "Part I--Bibliography" is explained. (BB)

COUNCIL FOR CULTURAL CO-OPERATION
OF THE
COUNCIL OF EUROPE

EUROPEAN RESEARCH IN AUDIO-VISUAL AIDS.

PART II
ABSTRACTS

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U.S. DEPARTMENT OF HEALTH, EDUCATION & WELFARE
OFFICE OF EDUCATION

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FOREWORD

This publication attempts for the first time to catalogue and summarise the research in audio-visual aids which has been carried out in Europe and covers the period 1945 to 1963.

One of its first objects is to make the results of research more widely known. Hitherto, with work going on in a variety of agencies and organisations—universities, national organisations, colleges of education and industry as well as education—it has been difficult to obtain information about experiments and research in this field. Reports, if they are published at all, are scattered through professional and trade journals making it difficult even in one's own country to find accurate and full information. It is hoped that this publication will make a contribution towards resolving this problem and towards applying the results of research in practice to achieve the most effective use of these teaching aids in education.

But it is hoped too that this publication will be of value to those engaged in research—by informing researchers about the work of, and bringing them into contact with, colleagues engaged on similar problems, by indicating where there is a lack of research and conversely informing them of those aspects of the subject which, from the point of view of research, are well documented.

The entries in this volume were collected by field workers whose job it was to collect information. In some cases a field worker was responsible for his own country—in others, where countries could be conveniently grouped together, he covered more than one country. In all cases field workers were experts in audio-visual aids with knowledge and experience of research. Their entries were submitted to an Advisory Committee responsible for selecting entries for publication. This Committee consisted of: Mrs. H. E. Coppen (Institute of Education, University of London); Dr. R. Lefranc (Directeur du Centre Audiovisuel de l'Ecole Normale Supérieure de Saint-Cloud); Dr. J. M. L. Peters (Directeur, Nederlands Filminstituut); F. Schmid (Director, Institut für Film und Bild, Munich) or his representative. Representatives of UNESCO attended, as observers, some of the meetings, which were under the Chairmanship of Dr. J. A. Harrison (Director, National Committee for Audio-Visual Aids in Education) who was responsible for the direction and organisation of the project.

A good deal of selection was exercised. PART I—BIBLIOGRAPHY is, however broadly based; it includes not only academic research but exploratory work, experiments and trials with new methods and uncontrolled experiments which cannot be described as research in the strict sense of the word. PART II—ABSTRACTS, however, includes only authoritative research directly related to learning.

To be of maximum value and service to education it is important that this information should be kept up to date—it is hoped therefore in due course to re-edit and publish supplements. This, as previously stated, is

however, the first attempt to catalogue and index audio-visual research in Europe—the Advisory Committee are aware of its limitations. They hope that users will point out any errors or omissions and so help to ensure that future publications are accurate and comprehensive.

In the preparation of this publication grateful acknowledgment is made to the U.S. Department of Health, Education and Welfare for a grant under Title VII, Part B of the National Defence Act of 1958 which enabled the work to be started; to the Council for Cultural Co-operation of the Council of Europe who took over the work through the Technical Committee for Film Activities and provided the necessary finance through the Cultural Fund from 1963; to the Advisory Committee, field workers and the many individual educationists who have given their help and support.

J. A. HARRISON,
London, 1966.

CONTENTS

PART I—BIBLIOGRAPHY gives for each item the reference number, the title, the author and the source and country of origin, as follows:

(i) *Reference number*

Entries are classified under ten Sections, some of which are divided into Groups. The reference number of an entry consists of a number (indicating the Section), then a letter (indicating the Group) and then a second number indicating the number in the Group in which authors are in alphabetical order)—for example 7.A.22.

The Sections and Groups are as follows:

SECTION 1 ***Films***

- ***Group A:*** **Cinema and the child; cinema and the adolescent; children's films, etc.**
- ***Group B:*** **Educational films, general and in relation to other media; university and research films.**
- ***Group C:*** **Films in subject teaching.**
- ***Group D:*** **Reaction to films (comprehension, remembering, evaluation, film language).**

SECTION 2A **Still projected media.**

SECTION 3A **Non-projected media (charts, models, reliefs, flannelgraphs, etc.)**

SECTION 4A **Museums**

SECTION 5A **Perception**

SECTION 6A **Radio**

SECTION 7 **Discs and tape recordings**

- ***Group A:*** **General**
- ***Group B:*** **Foreign language teaching**

SECTION 8A **Television**

SECTION 9A **Teaching machines**

SECTION 10A **Miscellaneous (mass media, general audio-visual aids, etc.)**

Thus, for example, an entry with a reference number *7.A.22* indicates:

7. This entry is in Section 7 dealing with Discs and Tape Recordings.

A. It is in the Group dealing with general items under Section 7.

22. It is the twenty-second entry in Section 7, Group A.

An * after the reference number indicates that an abstract of this entry is included in PART II—ABSTRACTS.

(ii) *Title*

The title of the item is given first in the language of origin and then in brackets in English.

(iii) *Author*

After the title the author's surname is given followed by initials. Entries in each Group are given in alphabetical order of author, or organisation when there is no author.

(iv) *Source*

The source, date and number of pages, are given following the author's name. Lastly a letter in brackets indicates the country of origin, as follows:

Austria (A); Belgium (B); Denmark (D); Eire (E); France (F); Federal German Republic (G); Holland (H); Italy (I); Norway (N); Sweden (S); Switzerland (Sc.); Turkey (T); United Kingdom (U.K.).

In PART II—ABSTRACTS, the entry given in PART I—BIBLIOGRAPHY is repeated. The abstract then follows under three headings:—Purpose, Procedure, Conclusions.

SECTION 1

FILMS

1.A. Cinema and the child; cinema and the adolescent; children's films, etc.

1.A.1 ***Der Film im Dienste der Kultur und der Erziehung.***
(Films in the Service of Culture and Education.)
AMGWERD, P. M.
Kollegium Sarnen, 128 pp., 1958. (Sc.)

Purpose:

To find out who goes to the cinema, and why, and what kinds of films schoolchildren want to see.

Procedure:

255 pupils were tested with questionnaires and divided into two groups: over 18 years old and under 18. 24% of the pupils lived in towns, and 76% lived in villages.

Conclusions:

For pupils over 18 years:

29% of the young people go to the cinema with the permission of their parents,

71% go to the cinema without having told their parents,

27% tell their parents the title and story of the film,

73% do not tell them anything,

65% have seen films that are not allowed for young people.

For pupils under 18 years:

84% of all children have to ask their parents if they want to go to the cinema,

16% do not ask their parents,

83% of the children's parents know the films their children are going to see.

To 64% of the children film is only entertainment and only to 12% is film an educational medium.

1.A.9 *Triebwirkung des Filmes auf Jugendliche.*
(The Influence of Films on Drives and Emotions of the Young.)
BELLINGROTH, F.
Stuttgart-Bern, 1958, 154 pp. (G. Sc.)

Purpose:

Psychodiagnostical research upon the effect of films on young people and an introduction to a theory of analytical film psychology.

Procedure:

1,105 children and young people were tested by means of ten entertainment films. Method: Application of Szondi test in group testing before and after the film. The difference between tests before and after a film was stated quantitatively and interpreted psychodiagnostically.

Szondi test was modified for the conditions of group testing with regard to the quantitative statement and qualitative interpretation.

Conclusions:

The testing provided psychological advice on each film about the effect on juveniles. Especially striking was the contradictory effect of two films. One film caused strong psychological conflicts connected with an increase in aggression; the other, however, had a strong cathartic impact by harmonising emotional conflicts. An attempt was made to find a hypothetical generalisation for the phenomena observed. The contradictory emotional impact caused by these two films was related to the psychoanalysis of dreams. Similar to dreams, films are explained as "Affektdrama". Emotional projections are evoked by the actor and changed during the dramatic progress of the film. The research thus gets to the theory of the "Filmpsychodrama", which leads to practical demands for a "Psychodramaturgie" of the films according to psychological principles.

1.A.34 *Children and Films.*
(A Study of Boys and Girls in the Cinema.)
FIELD, M.
Carnegie United Kingdom Trust, Dunfermline, Fife, 1954, 56 pp. (U.K.)

Purpose:

The purpose of the experiment was to record the reactions of various types of child audience at selected points during two film programmes.

Procedure:

Two programmes were selected; one of films specially produced for children, the other of good commercial films with a U certificate, the best of this type that would be available for a children's cinema club programme. In each film key points were selected and arrangements were made to photograph each audience at the same points by infra-red photography. Various arrangements were made in the seating of the audience but the children were unaware of what was happening. In addition, special observers watched each audience and recorded in detail their opinions of the general reactions to each film.

Conclusions:

It is suggested that the photographs produced provide material from which anyone can make his own deductions, but the attention of the reader is focused by a series of comments directed to:—

1. The interests of the film technicians in respect of titling, the introductory sequence, the nature of the dialogue, sound, anticipation, colour, beauty, animals, difference of response by different age and sex groups, the use of close-ups, the significance of direct personal appeal from the screen, reactions to the familiar and the strange factors that induce boredom, the inducement of identification.

2. The second series of reflections is concerned generally with the problems of the child and the cinema. The conclusions suggest that specially produced films for children with an influence value can have a pleasure value that is equal to, though possibly different from, that of commercial films. In addition, the report suggests that while it is not possible for adults to determine what will provide pleasure for young audiences they can give children what, according to their mature judgment, they consider to be the right influence value.

The appendices include examples of different types of research into the reaction of children to films carried out under the auspices of the League of Nations (1938), UNESCO (1950), Great Britain, Holland, Denmark and the United States.

1.A.35 *Untersuchungen über den Einfluss des Films auf kriminell gewordene Jugendliche.*
(Research into the Influence of Films on Delinquent Children.)
FLIK, G.
Psychologische Rundschau, V, I, 1954, 21 pp., Göttingen. (G)

Purpose:

This research studies the influence of films on the criminal behaviour of young people.

Procedure:

179 juvenile delinquents took part in this experiment.

Measurements:

17% of the delinquents believe that criminal offences in films influenced their own behaviour.

70% of the delinquents believed that crime and sex in films were dangerous for young people.

Conclusions:

This study completes the research of Hanns Wilhelm Lavies. It should be regarded as a subjective study, as only delinquents took part. Juvenile delinquents hope to be punished less severely if their criminal offences are caused by the influence of films. The real reason for juvenile delinquency is to be seen in socially or biologically conditioned attitudes.

1.A.38 *Das Filmerlebnis im Farbentest.*
(Film Experience in Colour Tests.)
GEHRMANN, F. J.
Bonn, 1958, 262 pp. (G)

Purpose:

This research tests the influence of film on 18-year-olds.

Procedure:

52 boys and 43 girls took part in this experiment. Gehrmann used the coloured pyramid test, "Farbpyramidentest", which is similar to that used by Pfister-Heiss. In this test, the subject has to say which pyramids he thinks are pretty and which are ugly. Gehrmann also used "standard" pyramids which enabled him to compare the results. One series consists of 30 pyramids.

The young people saw two films "Ausgestossen" and "Die Nacht begann am Morgen". Before and after the film the "Farbpyramidentest" was given. Eight weeks later the second test was given and 24 weeks later the third one, with reference to the first film which they were shown.

Conclusions:

The author believes that it should be possible to show the "actual tendency and the primary or basic tendency" of the subject. The results show that human emotions can be identified with the "Farbpyramidentest". It also reflects changes of emotion. The following emotions could be identified: depression, elation, neurosis, and affective derangement. The same emotions were shown to be present, though less intensively, after 24 weeks.

1.A.56 *Cinéma et affectivité.*
(The Cinema and Emotionality.)
HEUYER, G.
L'école des parents, janvier 1956, 3, pp. 15-27. (F)

Purpose:

To find out the effects of film on the emotionality of the child.

Procedure:

These experiments were carried out with delinquent and maladjusted children and with a group of students.

First Research: A study of the effect of films on maladjusted children.

Second Research: A comprehension test was given to the maladjusted children.

Third Research: A questionnaire was given to all the children to investigate the following:

(*a*) the frequency of cinema visits;
(*b*) their comprehension and recollection of the films;
(*c*) which types of films attract their attention;
(*d*) their identification with the theme, with the hero, with the actors;
(*e*) what influence the film has on their imaginative life.

Fourth Research: An experimental film was shown to four groups of pupils. This film had no story and for each group a different account of the contents was given.

Conclusions:

First Research: No relation between the cinema and delinquency was established.

Second Research: Over the mental age of seven the child sees the picture made up of short sequences but does not understand the succession of sequences. This finding supports the results of the research carried out by Mme. Zazzo. Between ten and twelve years old the child can understand the succession of pictures and the sequences. From the age of twelve he can understand the whole film and the general idea.

Third Research: 1. The experiment shows that the effect of the frequency of seeing films is much greater with the maladjusted child than with normal children. 2. The mental age of twelve is necessary for the child to be able to understand the general idea of the film. 3. There is a connection between the emotional reactions brought out by the film and the conflicting situations in the film. 4. The following points were studied: (*a*) Reaction to comic films: the coarsely comic appeals to all the children, but the pleasure that they get from it is not always real. Satire is not always acceptable to the children under the mental age of twelve. Chaplin humour is less agreeable to children than to adults. (*b*) Reactions to cartoons: in their current commercial forms children need a mental age of at least twelve years in order to understand them. (*c*) Emotional reactions to films: films constitute valuable material for the study of individual tendencies. They can, therefore, serve as projective tests. (*d*) The reactions of the child watching a film are individual and differ according to sex. (*e*) Films have an influence on mental attitudes and are social habits.

Fourth Research: It was established that the subject reacts to a film in accordance with his previous moral judgments and social impressions.

1.A.64 *Jugend und Spielfilm.*
(Youth and the Feature Film.)
KEILHACKER, M. *and* M.
Klett-Verlag, Stuttgart, 1953, 127 pp. (G)

Purpose:

To investigate the importance of films for children and adolescents.

Procedure:

Children of 4-14 years and adolescents of 14-18 years took part in this experiment. Interviews took place immediately after and a few days after the film was shown (Wiggle Test).

The development of film understanding:

Under 6 years: At this age only individual situations are understood, the children do not understand the story as a whole;

6-10 years: the action of the film is understood in "black and white style";

10-14 years: the action is understood subjectively;

14-18 years: At this age differentiated criticism begins. The film is not only seen as a whole; details are important.

Conclusions:

Children under twelve years are completely absorbed when seeing films. They are unable to register details. Their reactions are generally very strong. Laughing and anxiety are to be seen in the behaviour of children. This is not only a reproduction of the action of the film, it is an active personal involvement. Generally this involvement develops into identification. Most of the young people only want entertainment from films. About 20% prefer educational films. Young people are very strongly influenced by films—in their actions and in their behaviour as well as in their moral attitudes.

1.A.70 *Film und Jugend.*
(Cinema and Youth.)
KEILHACKER, M.
Juventa-Verlag, 173 pp., München, 1960. (G)

Purpose:

To survey the behaviour of young people while seeing films and after having seen films.

Procedure:

1,630 male and 1,212 female adolescents (15-18 years) took part in this experiment. Three types of questionnaire and about 400 essays were used.

Conclusion:

Film is an important part of entertainment for young people. There are two motives for going to the cinema: young people want to escape everyday life but they wish to see "real life" in the film. The film is like a dream, but a realistic one. There are three ways of seeing films: identification with the hero; involvement with the action of the film; interest with involvement. The main influence of a film is to be found in the excitement provided and in the images used.

1.A.71 *Kinder sehen Filme.*
(Children see Films.)
KEILHACKER, M. ; BRUDNY, W. ; LAMMERS, P.
Ehrenwirth-Verlag, 167 pp., München, 1958. (G)

Purpose:

This research registers the chief influence on children's emotions when seeing films.

Procedure:

Normal and deaf-and-dumb children (3-16 years) took part in this experiment. The children's behaviour when seeing films was observed and interpreted.

To get the film action together with the reactions of the children the film scenes were photographed (by means of a mirror) together with the children.

Conclusions:

3-4 years: children of this age have no satisfactory or continuous contact with films.

5-7 years: children of this age understand sequences of the film; the whole story of the film is not understood.

8-11 years: at this age children identify with the action of the film if it is suitable for their age. The emotions of children can be seen in gestures, mime and linguistic expressions. At this age understanding is differentiated between boys and girls.

13-14 years: children in this age group seldom show their feelings.

15-16 years: young people in this age group are very poor in expressions or they exaggerate in showing emotions.

Children's feelings of joy or anxiety when seeing films are much more intense than these emotions in adults.

One conclusion of this research is that film perception varies according to the type of child.

1. The normal type has a male character: robust, impulsive, vivid.
2. The more female type: quiet, sensitive (very often boys belong to this type: therefore it is not correlated to the sex of the child).
3. The nervous type: labile with either hysterical expressions or without any expressions at all.

Film education is successful only if it takes individual differences into account. Neither age groups alone nor sex groups alone nor the above mentioned typological groups can be more than a small help in film education.

1.A.77 ***Film und Jugendkriminalität.***
(Film and Juvenile Delinquency.)
LAVIES, W.
Film und Jugend, Band III, Wiesbaden, 1954, 173 pp. (G)

Purpose:
This research investigates the influence of films on the criminal behaviour of young people.

Procedure:
320 Juvenile Courts in towns with more than 10,000 inhabitants took part. 200 questionnaires were filled in by the Juvenile Courts. There were five cases in which films were the main factor influencing criminal behaviour. In 15 cases films influenced young people to criminal behaviour. In the same period more than 140,000 young people were sentenced.

Conclusions:
Criminal offences are seldom caused by film influence.

1.A.85 ***La censure des films et l'admission des enfants au cinéma à travers le monde.***
(The Censoring of Films and the Admission of Children to Cinemas —a World Study.)
LUNDERS, L.
Les Editions du CEP, Bruxelles, not dated, 508 pp. (B)

Purpose:
To give a survey of the legislation and film censorship throughout the world.

Procedure:

The book gives the results of an inquiry started in 1959 which served as a basic document for the congress of the "Office catholique International du Cinéma" in Vienna in 1960. The Congress dealt with the theme: "Le cinéma et la jeunesse et les pouvoirs publics".

The published texts fall into three categories: those based on official laws and regulations; those based on information obtained by correspondents, and (for the countries for which no official or direct source was available) those based on data from the UNESCO inquiry of 1949-1950: "Presse, Film, Radio dans le monde".
A list of films for children is added.

Conclusions:

No general conclusions can be drawn from the material compiled. For each country the texts of the legislation (if available), film tax regulations, the composition and working method of censorship committees, sanctions, etc., are given.

1.A.86 ***L'attitude actuelle des jeunes devant le cinéma (essai de synthèse). (The Attitude of Young People to the Cinema.)***
LUNDERS, L.
Editions du CEP, Bruxelles, Office général du livre, Paris, 1963, 193 pp. (B)

Purpose:

To find out the attitudes of children and adolescents towards the cinema in the television era.

Procedure:

All recent literature on the subject of "film and youth" and related subjects was examined: the cinema attendance of young people, their tastes and preferences, the number of films available for young people, etc. The data found were compared.

Conclusions:

1. Television is not the only important cause of the crisis of the cinema. Economic and social evolution has brought much more time for leisure. Parallel to television other forms of leisure activity have developed: motoring, travelling, reading. One-third of television viewers have deserted the cinema but other forms of entertainment, comparable with the cinema, have been influenced similarly by television.

2. The decrease in cinema attendance is less noticeable with the 15 to 20 year age group. Young children seem to prefer television but as they grow older the interest for the cinema increases. Television is not an effective substitute for the cinema, but the cinema has lost its monopoly among the entertainments of youth. However, the cinema performance remains a social need: the weekly or twice-weekly visit to the cinema is a part of normal routine. In this way the cinema is more or less "institutionalised".

3. It is very difficult to get a definite picture of the cinema attendance of young people from the literature that has been examined. The methods employed by different investigators often show serious limitations. But the highest attendance seems to be in the 15-20 year age group. It is remarkable that these figures do not differ much from those of 30 years ago.

4. Cinema attendance is influenced by several factors such as the following: children in urban districts go to the cinema more often than country children and among the latter children in agricultural environments go more often than others. Attendance is higher among working-class children and children at trade schools. It is lower with children of higher intellectual and cultural levels, and these children are also more selective.

5. It is still more difficult to get an exact idea of the real tastes and preferences of young people. Some general trends are: interest in filmed fairy tales is very soon lost; boys develop a marked preference for detective and gangster films; girls for romantic and sentimental films. These preferences however are often conditioned by the programmes of the cinemas. The latter is also the cause of a marked preference for certain film stars. Star culture moreover is a widespread phenomenon, carefully cultivated by the popular press.

6. The cinema does not take the first place among the leisure occupations of young people. Generally speaking sports and other out-of-doors activities are preferred to cinema-going.

7. Since the film industry tries to win back the adult audience by special "adult" films, fewer films suitable for young people are available. This situation has become even more serious because of the trend to make censorship more severe.

1.A.101 *Films and other Mass-media.*

PINNA, L. ; MACLEAN, M. S. ; GUIDACCI, M.

Bianco e Nero, Roma, 1958, 171 pp. (I)

Purpose:

To investigate films and other mass-media.

Procedure:

4,820 subjects (over 17 years) took part. After a careful preliminary study of the social environments, the research was carried out by means of questionnaires and interviews.

Conclusions:

The results are presented in comparative tables at the end of the study; they concern a comparison between the social conditions, sex, age, etc., of the subjects interviewed and their tastes.

1.A.105 *Le cinéma et la délinquence juvenile.*
(The Cinema and Juvenile Delinquency.)

RAYMOND-DECHARNEUX, G.

Extrait de la Revue de droit pénal et de criminologie, mai 1957, Nivelles, 60 pp. (B)

Purpose:

To determine the part played by films in juvenile delinquency.

Procedure:

A group of 237 delinquents (171 boys and 66 girls) between the ages of 12 and 18 years answered a questionnaire about the kind of entertainments they generally preferred, the frequency of their cinema attendance, their reasons for going to the cinema, the good or bad influence the cinema had on them in their own opinion,

etc. The same questionnaire was given to a control group of 335 young people (165 boys and 170 girls) of the same age, social status and domicile (non-delinquents) and the results of both groups were compared.

These results were analysed in detail and compared with other research findings in the same field.

Conclusions:

1. The majority of both groups favour the cinema as one of their main entertainments, but in the life of the delinquents (and especially the girls) the cinema occupies a bigger place; the non-delinquents have a greater range of amusements. Nevertheless more delinquents than non-delinquents dislike the cinema.

2. As to the frequency of cinema-going there is no great difference between the two groups.

3. The non-delinquent girls go to the cinema in the company of their parents; the delinquent girls go more often with their boy-friends.

4. As to the motives for their preferences and tastes there is no difference between the two groups. Only the non-delinquents state that they like the cinema because it is instructive and interesting.

5. Both groups of girls like adventure and romantic films best; only the control group is interested in documentary films. The delinquent boys show a slight preference for films of violence, crime and war whereas the non-delinquent boys prefer comic films and documentaries.

6. The non-delinquents talk and think much more about the films seen than the delinquents do.

7. More than 50% of the non-delinquents think that the cinema has a good influence on them. Only 5% of the boy delinquents are of the same opinion but none of the girl delinquents think so. Conversely about 20% of the delinquents and only 5% of the non-delinquents think that the cinema has a bad influence on them.

1.A.112 *Kind und Film.*
(The Child and the Film.)
SICKER, A.
Huber-Verlag, Bern-Stuttgart, 1956, 143 pp. (Sc.)

Purpose:

To investigate the influence of films on children's behaviour.

Procedure:

280 boys and 146 girls took part in the experiment. Tuanima-Test, Pigem-Test, Field-Studies were used. The Tuanima-Test from Reich consists of 36 pictures, on which such symbols as a sun, moon, heart, rose, knife, etc., are shown. Each symbol has a certain meaning. Both the Pigem-Test and the Tuanima-Test are projective tests. In the Pigem-Test the subject has to say what kind of animal he would like to be.

The aggressive tendencies of each child were determined before the film "Hansel and Gretel" was shown. After the film the aggressive component was tested again. Another group of 141 boys and 102 girls were tested with a Chaplin film. 38·5% of all the boys and

32·2% of all the girls changed their preferences in the Pigem-Test. Before the film 148 aggressive factors could be distinguished with the boys. After the film 54 fewer were found. Before the film 20 aggressive factors could be found with the girls and after the film 18 fewer were found, i.e. 36·5% fewer aggressive tendencies with the boys; 90% fewer aggressive tendencies with the girls.

Conclusions:

The author believes that the film "Hansel and Gretel" has a highly significant tendency for reducing aggression. He hopes that by other similar tests emotional attitudes can be investigated.

1.A.114 *Impact of the Cinema on the Adolescent.*
SMITH, E. M.
E.N.E.F. Bulletin, April 1949, pp. 3-4. (U.K.)

Purpose:

To study the effects of the cinema on the social, economic and emotional life of children between 13 and 16 years from all types of educational institution.

Procedure:

During two weeks of the beginning of 1949, a group of 12 people under the leadership of Dr. W. D. Wall of Birmingham University, studied the impact of films on young people in the urban areas near Birmingham. The methods used included informal discussions, recording of spontaneous opinions, completion of two questionnaires well separated in time and in the case of one-fifth of the children, an anonymous essay.

1.A.123 *Der Film als Erziehungsmacht.*
(The Film as a Power in Education.)
STÜCKRATH, F.
Gesellschaft der Freunde des Vaterländischen Schul- und Erziehungswesens, Hamburg, 1953, 72 pp. (G)

Purpose:

To investigate the behaviour of children while looking at films and after having seen films.

Procedure:

Groups of children and young people took part in this experiment. The behaviour of the children and interpretation of their behaviour was investigated with all psychological methods including projective methods.

Conclusions:

The expressions of children were much stronger than the expressions of adolescents. Most of the children identify themselves with the hero of the film. The younger the pupils are the less they can analyse the content of the film.

The influence of films on children and adolescents is very great. If children go to the cinema frequently attitudes as given in the film are accepted. Therefore all teachers should help young people to resist the harmful influences of films by film education. This new educational field aims at furthering a critical and analytical attitude towards films.

1.A.126 *Connections between Children's Literature and Cinema.*
TADINI, F.
Lumen, No. 19, 1959, 582 pp. (I)

Purpose:
To study interest in children's literature in relation to cinema.

Procedure:
270 girl pupils (15-19 years) in two classes took part in this experiment. Direct observations were made on the behaviour of pupils. Readings of literary texts and projections of films derived from literary texts were alternated. Afterwards discussions were organised during the training-hours.

Conclusions:
The simultaneous use of a literary text and of a filmic test was found to be helpful in the development of observation and of a critical sense.

1.A.128 *Cinema e Gioventú: Studio degli aspetti sociali e dei Motivi di Interesse.*
(Cinema and Youth: a study of the social aspects and of the motives of interest.)
TARRONI, E.; PADERNI, S.
Institute of Pedagogy, University of Rome, 1952, 161 pp. (I)

Purpose:
To find out the inclination and preferences of young people.

Procedure:
5,000 boys and girls from 8 to 16 years took part.
Special questionnaires were sent to these 5,000 individuals of different social classes living in towns and villages in every region of Italy.

Conclusions:
The results obtained led to some fundamental conclusions on the following items:
frequency of attending film performances;
the place which cinema has in the leisure time of young people;
motivation of the choice of a film;
interest in the different kinds of films.
All these items were studied in relation to the age, sex and social background of the subjects.

1.A.133 *Der Film und die Antwort der Erziehung.*
(Film and the Response of Education.)
TROGER, W.
Reinhardt-Verlag, München, 1962, 230 pp. (G)

Purpose:
This research was carried out to complete a series of researches already published and to develop principles for film education.

Procedure:

Children and young people up to 20 years of age took part in this experiment. 3,725 questionnaires were completed by:
2,609 pupils of secondary schools (13-20 years),
232 pupils of elementary schools (12-14 years),
884 pupils of grammar schools (12-20 years).

Conclusions:

Development of understanding of the film:

Under six years: *Bildverstehen*—understanding of the sequences;

Over six years: *Handlungsverstehen*—understanding of actions;

Adolescents: *Motivations- und Sinnverstehen*—understanding of motivation and content.

Young people of the age of:
14 years go to the cinema 2—3 times a month,
15 years go to the cinema 2—4 times a month,
16 years go to the cinema 2—8 times a month,
17 years go to the cinema 2—8 times a month,
18 years go to the cinema 2—3 times a month,
19—20 years go to the cinema 1—7 times a month.

Young people say that they learn much more through films than by all other means such as school, books, newspapers, radio and television.

1.A.135 *L'Educazione Contemporanea.*
(Contemporary Education.)
VOLPICELLI, L.; RUMI, M.
L'Educazione Contemporanea, Roma, 1959, 337 pp. (I)

Purpose:

To study the attitudes of boys and girls to the cinema.

Procedure:

Some hundreds of pupils attending the elementary schools (8-10) took part.

A series of films especially for young people were projected. Afterwards the impressions, the behaviour and the reactions of the viewers were carefully studied. In addition the pupils wrote compositions about the films.

1.A.137 *The Adolescent and the Cinema.*
WALL, W. D. *et al.*
British Journal of Educational Psychology, Vol. XIX, February 1949, June 1949. British Journal of Educational Psychology, Vol. XX, November 1950; Vol. XXI, June 1961.
Journal of the Institute of Education, University of Birmingham, Vol. I, October 1948, February 1949. (U.K.)

Purpose:

To study the effect of films, particularly on the emotional life of adolescents between thirteen and sixteen.

Procedure:

The data were gathered in about one month from children in the urban areas of the Midlands. In the first phase general information about habits of attendance and preferences was obtained through questionnaires from 1,250 girls and boys in three types of secondary school. In addition nearly 1,000 wrote an essay on "My Favourite Film". In the second phase every film shown in a selected fortnight was seen and reported on by the team of adult observers. In the week following this fortnight, samples of pupils in secondary schools were asked to complete a detailed questionnaire on a film seen during the chosen period. This yielded 2,000 replies; in subsidiary enquiries the data were checked by a number of interviewers, and in a collateral enquiry, the book choices of some 2,000 boys and girls were studied to estimate the influence of the cinema on the choice of reading.

These methods of studying the problem were adopted by the team in the belief that an attempt to control the stimulus of the cinema experimentally alters the situation subtly and incalculably and such a study might bear little relation to what is likely to happen under the ordinary conditions of "going to the flicks".

Conclusions:

The general conclusions from the first part of the enquiry indicate that the cinema is an important educational force in the lives of adolescents. They turn to the cinema for information about life and for guidance on how to behave and to dress; this is specially true of girls.

Adolescents are most avid for information about human relations and to many the cinema is the only school in which they are taught such things in a way they can understand.

The second part of the enquiry, the emotional effect of certain specific films on 476 boys and 370 girls, was analysed. It seems that the cinema provides a powerful stimulus of fantasy life, yielding enduring satisfaction to both boys and girls. This applies especially to films dealing more or less seriously with human themes. Certain films and incidents stimulate crude erotic fantasy, especially among boys, but few experiences of fright are recorded. In a callow and naïve fashion the adolescent audience is critical, clinging to certain ideals and responding to broad presentation of worthwhile effort. Nevertheless the process of conditioning is insidious and the problem is how to sharpen the nascent and ill-formed awareness of right and wrong.

1.A.139 *Jugend und Filmerleben.*
(Youth and Film.)
WASEM, E.
Reinhardt-Verlag, München-Basel, 1957, 139 pp. (G. Sc.)

Purpose:

To investigate the behaviour of children and young people when seeing films and to find categories for film education.

Procedure:

300 male pupils and young people from 10-17 years were tested by Wiggle-Test (observation according to Gratiot-Alphandery and A. Bouisson), a special version of the Wartegg-Erzähltest, and reports.

Conclusions:

It is possible that children from 6-7 years get frightened by seeing film scenes because these are understood in isolation. Adjustment to the adult-world is developed by frequent visits to the cinema.

8-10 years: repetitive viewing encourages imitative behaviour among children. Children very often have a "collector's" attitude to seeing films.

11-13 years: a regular film visit at this age furthers extraversion.

14-15 years: film star worship begins. Young people are influenced in their attitude to sex by frequent visits to the cinema.

There are differences in film comprehension between children and adolescents living in towns and those living in villages. Country children develop in the same way but more slowly than children and adolescents from towns.

The better a film is understood the better it is remembered. If the film as a whole was not understood details and sequences are remembered in isolation. The atmosphere of a film has a great influence on children only if they identify with the action.

1.A.143 *Untersuchung über das Filmerleben und seine psychologischen Begleiterscheinungen bei 6- bis 12- jährigen Kindern.*
(Investigation of Film Experience and its Psychological Side-effects on 6-12 year old children.)
Wissenchaftliches Institut für Jugendfragen in Film und Fernsehen, München, 1962, 183 pp. (G)

Purpose:

To investigate the behaviour of children from 6-12 years while seeing films, and to find out how far psychological and physiological responses correspond when seeing films.

Procedure:

2,000 children from 6-12 years, took part in this experiment. The tests used included:

(*a*) photoelectric pulse measurement,
(*b*) sphygmographical pulse measurements,
(*c*) electro-cardiogram,
(*d*) statistical methods,
(*e*) observations of the children's behaviour while looking at films,
(*f*) exploration of individuals and groups,
(*g*) picture test.

Conclusions:

There are several specific stages of emotion. The greater the intensity of emotion the faster the pulse. Powerful scenes bring out powerful emotions. There is a very high correlation between the expressions of children and their emotions; this is demonstrated by psychological measurements as well as by the frequency of pulse and the rate of breathing. Children understand special films made for them better than films for adults. They cannot understand flashbacks. Understanding of film scenes corresponds very highly with the action of the film. The older the child is the better he can understand a film without much action in the plot. Emotions of shock cause a high lability of children's pulse.

1.A.144 *Le concours international du film récréatif pour enfants.*
(The International Conference of Children's Entertainment Films.)
ZAZZO, B. ; ZAZZO, R.
Courrier du Centre International de l'Enfance, Paris, IV, 5, 1954, pp. 235-258. (F)

Purpose:

The International Conference of Recreational Films was organised to encourage the production of films which are suitable for children and to determine certain criteria. The purpose of the research described here was to analyse the children's votes, to explain how they voted, and to study the reactions not explained by the children's choice.

Procedure:

1,473 school children in two groups took part. The first group consisted of children in elementary classes (7-9 years old) and the second of children in higher elementary classes (10-12 years old). Ninety films were shown to the children who were asked to select those which they liked best. Twenty-eight films were selected by the first group and thirty-three films by the second group (eleven films in common for the two groups were chosen). After the projection of the films the children were asked to vote for the film they preferred in each category: fiction films with actors; documentaries; marionettes and dolls ; cartoons, etc. After the first selection eleven films were selected by the first group, fourteen films by the second group for the semi-finals. In the finals each child chose the final winner.

During projection the reactions of the children were recorded. The votes of the children were analysed according to their age level and sex. Then the relation between the children's votes and their reactions in front of the screen were analysed.

Conclusions:

The differences between the choices of boys and girls were much greater in the first age group than in the second. A difference in age of two years had about the same effect in the choice of films as the difference in sex.

Finally there were special characteristics for each sex. The girls' preference was for the child-hero, people in distress, films with slow action. The boys' choice was action film or films dealing with events rather than people.

1.A.147 *Une Enquête sur le cinéma et la lecture chez les adolescents.*
(An Enquiry into the Cinema and Reading Habits of Adolescents.)
ZAZZO, B. ; ZAZZO, R.
Enfance, 1957, No. spécial "Les ciné clubs de jeunes", pp. 389-411. (F)

Purpose:

The cultural value of films is often questioned and films are blamed for the lack of interest in reading. This experiment investigates whether there is rivalry between films and books.

Procedure:

3,927 young people (male and female, aged between 14-18) were divided into two broad categories: students in secondary schools and students in trade schools.

In order to permit a comparison between reading and films a questionnaire was prepared concerning twenty films based on literary works. It asked which of the films were seen and which of the books read and whether the books were read before or after seeing the films. It also asked whether the book or the film was preferred in each particular case. Various statistical calculations were made: percentages, averages, calculations of chi squared.

Conclusions:

A distinct difference was noted between the amount of reading done by working-class pupils and those of middle-class backgrounds. The difference is less pronounced for films. No matter what the social background, more films are seen by boys than by girls. As to the reading of books the sex factor is not the same in the two milieux; working-class girls read less than the middle-class girls. In both milieux, knowledge of the film is a motive for reading the book. The absolute ratio in the increase of reading is the same.

The majority of the trade school students prefer the film to the book. The preference of the High School students varies a great deal from one book to another.

1.A.148 *La jeunesse et le cinéma.*
(Youth and the Cinema.)
ZAZZO, B.; ZAZZO, R.
Courrier du Centre International de l'Enfance, Paris, 1958, 4, pp. 185-197. (F)

Purpose:

The continuation of research conducted during the International Congress of Recreational Films. This investigation puts the emphasis on the viewer, his preoccupations, his attitudes and pleasures as a means of studying the reactions to the films chosen.

Procedure:

First investigation: a questionnaire was given asking how often people went to films, their choice of films and their preference for certain films, the attitude they had towards censorship and the correlation between the frequency of going to films and reading.
Second investigation: nine films were chosen and shown during nine different sessions.

Audience reaction was investigated by:

(*a*) recordings made during the projection,
(*b*) questionnaires after the film,
(*c*) debates by small groups,
(*d*) a final questionnaire to compare different films and complete the investigation.

Conclusions:

First investigation:

1. Students in the Lycées go to the cinema less than those in Trade Schools.

2. The frequency of family visits to the cinema diminishes (as the children grow older they go to the cinema with friends of the opposite sex).
3. The films which they go to see do not seem to be the ones that received most commercial publicity.
4. Many youths under sixteen see films which are officially censored and prohibited. (60% among Trade School pupils, male and female: 40%, 20% among the Lycée students, male and female.)
5. There seems to be a positive correlation between cinema attendance and reading.

Second investigation:

Answers to three different questions arising here from three different films were investigated.

1. How do children judge parents in their role as educators in the film "Demain il sera trop tard"?

They feel that parents do not help them with their sex education.

2. The right of parents to decide the child's future emotional life in "Elle n' a dansé qu'un seul été"?

Youth generally reject parental authority by not answering the question.

3. The right of parents to arrange the professional future of their children in "Le Point du Jour"?

Here also the children rejected parental authority, but accepted the idea that parents guide them, or prevent them from making serious mistakes.

1.A.149 *Jugend und Film.*
(Youth and Film.)
ZOCHBAUER, F.
Verlag Lechte, Emsdetten, 1960, 220 pp. (G)

Purpose:

To investigate the effect of films on human behaviour and the human mind.

Procedure:

520 young people and adults took part. The test used was a variant of the "Luscher-Farbtest" test developed by Zochbauer. The subject chooses the colour he likes most. By changing his mind at the second colour test after seeing the film he can test the effectiveness of the film. All subjects were tested before and after seeing the film. Zochbauer tested all subjects and grouped them into different colour-groups, i.e. grey group, blue group, red group, green group, etc. Then he calculated the position coefficient for each group and each person. The author develops his own theory of "colour types".

Conclusion:

By changing his position coefficient within the group the subject shows that the film has had a certain effect on him. The more definite the attitudes of an individual are the less can he be influenced by a film. The characters of young people are not definitely formed and therefore they are very easily influenced by film. Two types of young people are more resistant: those with a critical mind and those with prejudices.

1.A.150 *Das Filmerleben und seine Auswirkungen auf Kinder und Jugendliche.*
(Film Experience and its Effects on Children and Adolescents.)
ZULLIGER, H.
Hoheneck-Verlag, Hamm/Westf. 1958, 21 pp. (G)

Purpose:

To investigate the effect of film on children and adolescents.

Procedure:

All reports were analysed according to the methods of Sigmund Freud. Case studies and investigations showed that many children suffer from the effects of seeing films. Spoiled or neglected children are the most susceptible to these effects.

Conclusions:

The best help against the dangers of films is parental love and a good atmosphere in the family. Collective education never can be a substitute for good family life. Teachers should help especially those children whose family life is unsatisfactory. The film heroes must be real heroes worth emulating.

1.B. Educational films, general and in relation to other media, university and research films.

1.B.1 *Une expérience d'information dans les classes de fin d'études primaires.*
(An Experiment on Information with Classes of Children in the last Year at Elementary School.)
BACQUET, R.; CHAUDAGNE, H.; LARCEBEAU, J.; LÉON, A.
Bulletin de l'Institut national d'orientation professionelle, janvier-février, 1954, 1, pp. 3-27. (F)

Purpose:

To examine methods of providing information about occupational openings for boys. To give them a choice of profession that interests them and is within their abilities.

Procedure:

Eight classes, 124 pupils of 13-14 years in their last year of elementary school took part in this experiment.

Information about the child was gathered through the family, the teacher and the counsellor. A pamphlet "From School to Trade" was distributed to the parents; special lessons were given by the teachers; discussions and films were presented. The 124 pupils were divided into two groups: one was experimental and the subjects were put through the three different phases of the experiment. A series of questionnaires was given to check the information acquired. Percentages, averages and tests of significance by "Chi squared" were used.

Conclusions:

1. The influence of the pamphlet: it seems that the pamphlet was largely read by the parents; the children were interested but the pamphlet did not bring about a sufficient amount of discussion between parents and children.

2. The contribution of the teachers' lessons: these enriched the child's knowledge, but nevertheless the ignorance of the children remained great in this field.
3. The contribution of the discussions and films: the experimental group which received this last method of information had a greater knowledge of trades and showed a greater decisiveness in their choice in reference to the manual trades. Thus this information created new attitudes in regard to jobs in general.

1.B.2 *The Effectiveness of Filmstrips and a Sound Film in Teaching a Science Topic.*

BARTON, W. H.

Thesis for M.A. degree, University of Manchester, 1957. (U.K.)

Purpose:

To test:

1. The general effectiveness of the visual method in a science course on the topic "Water",
2. The effectiveness of visual method in teaching facts, scientific principles, processes, applications,
3. The effectiveness of photographs and of line drawings in the filmstrip,
4. The performance of children in verbal and visual tests.

Procedure:

The test covered a course of teaching over twenty-nine periods of instruction of average duration thirty-seven minutes, carried out in the first forms of two co-educational grammar schools, comprising 224 pupils. In school A, one teacher taught the first four forms, two by visual methods, two by the control method. In school B two teachers each taught two forms, one by visual and one by the control method.

A test of fifty-two items was constructed giving scores for facts, principles, applications and processes. Visual items covered material which was taught by filmstrip photographs or diagrams to the visual group and by verbal description or blackboard diagram to the controls. The tests were administered immediately after the course and were repeated three and six months later. Ten months after the end of the course the pupils wrote a forty minute essay on water supply.

Conclusions:

The visual method is most effective in the teaching of scientific facts as distinct from principles and processes, and in helping to recognise and remember visual data, especially when these are in the form of actual photographs. The visual method is most suitable for teaching D stream pupils.

1.B.11 *A Comparison between Silent and Sound Films in Teaching.*

CRAIG, G. D.

British Journal of Educational Psychology, Vol. XXVI, 1956, pp. 202-206. (U.K.)

Purpose:

To find out whether a teacher can take a 16 mm. sound film and improve its effectiveness by using a mute copy.

Procedure:

The actual testing took place over a period of ten weeks, but a good deal of preliminary work had been done to select suitable films and to devise suitable questions. The children taking part were first year children in a four-stream secondary modern school in May 1954 and the first-year children in the same school in May 1955. Six sound films were selected from the Science Section of the Sheffield Educational Committee Film Library and were shown to the children once only, one film per week over a period of six weeks. Immediately after seeing the film and again four weeks later, a test paper was answered. Each group saw three sound and three silent versions. The teacher spoke the unscripted commentary adapting the material to the level and experience of the class.

Conclusions:

The results show that the silent version with the teacher's commentary achieved significantly higher test scores than the sound version used alone, both on immediate and delayed recall and with both normal and backward children. It must be noted, however, that (1) the type of film used might be a limiting factor; (2) the sample population was necessarily a narrow one; (3) the silent versions were all demonstrated by the same teacher—quite different results might be obtained by other teachers in the same conditions.

1.B.14 ***E.N.P.I.***
(National Society for the Prevention of Accidents, Italy.)
Rome, 1954-62. (I)

Purpose:

To promote, increase and encourage awareness in order to prevent accidents.

Procedure:

Audio-visual aids were produced on the subject of accident prevention. They were distributed all over Italy and the results examined, region by region.

Conclusion:

Audio-visual aids have shown their great utility in the prevention of accidents.

1.B.19 ***Musique et image.***
(Music and Image.)
FRANCES, R.
Cahiers d'études de radio-télévision, 1958, 18, pp. 136-162. (F)

Purpose:

To study the influence of pieces of music on the significance of three sequences of corresponding genesie.

Procedure:

This experiment was made during a series of inquiries on musical significance in 1954. For each of the sessions the experimenter obtained the help of one class in Philosophy or Mathematics from a Lycée in Paris, about thirty-five subjects in all. There was a control group of twenty-eight subjects. The average age of the students was between seventeen and twenty.

The experiment was presented to the group in such a way that their attention was not drawn to the musical accompaniment, but mainly to the visual elements. A questionnaire was handed out; slightly different according to whether it was on the titles or on the sequences themselves.

The experimenter presented the images with one of the two musical versions according to which group of subjects was being tested. A control group was present at the projection of the titles and the three sequences and answered the same questions, but without hearing any of the musical accompaniments (fifth session). Between two projections, a questionnaire was handed out. The last session, without musical accompaniment, was intended to test the neutral degree of the image.

Measurements:

(*a*) a graphic representation of the given numerical value was accomplished;

(*b*) the different cinemagraphical styles were grouped into two or three categories and the significance test of chi squared was applied, for the titles and the first two sequences;

(*c*) for each sequence, the answers were codified in relation to the two proposed versions. The threshold of statistical significance was calculated, after grouping, for certain answers.

Conclusions:

(*a*) Although unaware of it, the spectators were influenced by the music. This effect was shown in the interpretations given to the visual elements.

(*b*) The visual interpretation of the titles or the image sequences varies according to their characteristics: they may be completely ambiguous or completely determined in character.

(*c*) The dramatic type suggested by the music orientates the interpretation in one direction, but it is the character of the details that finally decides which interpretation will be chosen.

1.B.20 *The Film in Scientific Research.*
Working Party set up by D.S.I.R. under the Chairmanship of Dr. W. L. Francis, C.B.E., Director of D.S.I.R.
Report of a Working Party. Published by Department of Scientific and Industrial Research, 1963, 67 pp. (U.K.)

Purpose:

To suggest ways of encouraging the future development of scientific photography and scientific research film.

Procedure:

The working party was formed in June 1960 (composed of persons with knowledge and experience of the applications of scientific photography) to consider (i) what is needed on information, research and development in the field of scientific film and (ii) the appropriate functions of a central organisation for scientific cinematography. The study included an examination of activities in Europe and the U.S.A.

A questionnaire was sent to all known users of cine photography in research in industry, the universities and government departments. The consulting firm Production Engineers Ltd. was then brought in to make an independent detailed investigation. A thorough survey was carried out.

Conclusions:

An information centre should be established, preferably in one of the government research establishments, to collect and disseminate information on scientific cinematography. A central research photography unit should be established within it, to conduct research and development on the techniques of scientific photography. A department in a University or C.A.T. should train scientists, provide teachers and offer short advanced courses. Universities should be encouraged to develop central photography units, and form libraries of single concept films.

1.B.41 *Comparaison des durées cinématographiques par l'enfant. (A Comparison of Children's Estimates of Film Lengths.)*

LAJEUNESSE, L. ; ROSSI, R.

Enfance, novembre-décembre 1957, pp. 583-586. (F)

Purpose:

An enquiry into the length of films as estimated by children.

Procedure:

Twenty-five pupils in the Fourth and Fifth Grades took part in this experiment. Three versions of the same film (16 mm., black and white, without sound) were used: one with close-ups, the second with general shots, and the third with normal proportions. The deviation in the results of the answers to two similar questionnaires given before and after projection measured the acquisition of knowledge. Two questions were added to make the notion of length precise. How long did you stay in the dark during the film? (An estimate of real length T1.) How long did the actor take to produce his thermometer and examine the patient in bed? (Estimate of the length of time taken by the actors T2.)

Conclusions:

With the Grammar School children the results from the point of view of comprehension were different according to the version of the film T1, and T2, were about the same, but it was found that:

20·8% estimated that T1 was less than T2;
34·8% estimated that T1 was equal to T2;
3·9% estimated that T1 was longer than T2.

With the adult students: the average of the T2 was higher than the time of T1 in projection.

The following percentages were found:

40% estimated T1 less than T2;
36% estimated T1 equal to T2;
24% estimated T1 longer than T2.

These results show that children and adults have a reversed conception of T1 (projection time) and T2 (action time). Nevertheless this experiment should be followed up because of the small sample of adults used. But it would seem that children are more accurate concerning real time T1, and that adults are more objective concerning the time of action T2.

1.B.42 *Influence de certains modifications de la structure des films sur l'intégration des contenus cinématographiques per des enfants d'âge scolaire.*

(The Influence of certain Modifications in the Structure of Films in the Integration of the Cinematographic Content by School Children.)

LAJEUNESSE, L. ; ROSSI, R.

Revue Internationale de Filmologie, Vol. 10, 32-33, janvier-juin, 1960, pp. 90-100. (F)

Purpose:

To compare comprehension of differently constructed films by a homogeneous group of children.

Procedure:

218 boys (Third Grade) took part in this experiment. Three different versions of a teaching film about the thermometer were used. The films were silent black-and-white.

Version A: An equal number of long shots and close-ups were used, creating a heterogeneous structure.

Version B: A predominance of long shots giving a synthetic structure.

Version C: A predominance of close-up shots giving an analytical structure.

The children filled in similar questionnaires before and after the projection, in order to measure the acquisition of knowledge. Essays were also written about the films.

A study was made of the significant differences between the percentages. The significant tests were chi squared and the T of the student.

Conclusions:

In all three cases the projection of the film "The Thermometer" brought a gain in knowledge, but this gain varied according to the versions.

(I) The C Version was the most homogeneous in construction and brought about the greatest gain.

(II) Version B, the most heterogeneous in construction, brought about the least gain.

(III) In certain cases, each of the three types of film structures was suitable for presenting information at different levels.

1.B.43 *The Impact of Visual Aid Displays showing a Manipulative Task.*

LANER, S.

The Quarterly Journal of Experimental Psychology, Vol. VI, Part 3, 1954, pp. 95-106. (U.K.)

Purpose:

To test the effectiveness of visual aid material in providing instruction about a manipulative task.

Procedure:

A film and filmstrip, composed of line drawings, were compared for efficiency. Their respective effects were tested by making the subjects actually perform the task, in this case the dismantling, repair and subsequent re-assembly of a sashcord window. Seventy-five subjects were tested, of whom sixty-three were National Service men (R.A.F.) and twelve were University students. The task performance as shown in the film was considered to be the correct performance. The filmstrip, consisting of fifty-one frames, was prepared in the laboratory. The commentary for the film and the filmstrip were both recorded and the wording for both types of display was virtually identical in phrasing and content. Each subject was told in advance that he would be asked to perform the task after the showing. A close record was kept of each performance, but timing was dropped after a try-out. Intelligence test scores (H.H4—a written intelligence test containing verbal and non-verbal items) and N.I.I.P. Spatial Relations test scores were obtained for sixty of the performers, who were National Service men. This was not possible in respect of the remaining subjects, twelve of whom were University students.

Conclusions:

From this study, fidelity of representation emerges as a misleading notion in the construction of visual aids to present a manual task. Adequacy of presentation should be aimed at and this is not synonymous with fidelity of representation.

1.B.45 ***Mise au point de questionnaires types pour l'évaluation des aptitudes d'une population scolaire à la compréhension des films d'enseignement. Evaluation des possibilites prédictives de ces questionnaires. (Specimen questionnaires for testing a school population in the comprehension of teaching films.)***

LEGOUT, P.

Mémoire dactylographié, Centre Audio-Visuel, Saint Cloud, 1963. (F)

Purpose:

To validate the questionnaires which test the knowledge acquired by the audience from the films.

Procedure:

Subjects answered questionnaires before and after the projection of the films: "Coal", "Cold", "The Adventure of Drilling" and "The Principles of Lighting", in order to test their comprehension of these films.

Conclusions:

It seems from the results of this study that an established questionnaire for a film is as satisfactory a control as a non-filmic test, and should be preferred. It would be interesting to find out, six months after the projection, if the results obtained are still valid.

1.B.47 *A Comparison of the Efficiency of Sound and Silent Films as Teaching Aids.*

MACKINTOSH, D. M.

Scottish Educational Film Association, Research Publication, No. 3, 1947, 20 pp. (U.K.)

Purpose:

To investigate whether pupils acquire the main facts of a topic which is visually presented more readily from a sound film or from a parallel silent film supplemented by a teacher's commentary.

Procedure:

The investigation was conducted in a Junior Secondary School in Fife, in two stages. Only the second stage is reported here. The film chosen was "Water Power", used as part of a physics lesson and shown to two groups matched for I.Q. and previous class work in each of two Junior Secondary Schools. The experiment was repeated in another school using "Water Power" as part of the geography lesson, and a third time using "Wheatlands of East Anglia". The presentation of the film was followed by an objective test which was drawn up by a panel of teachers.

Conclusion:

The result, given in the tables, is not conclusive. A later, detailed investigation of the answers and an inquiry with the pupils led the experimenters to conclude that within the limits of the experiment the silent film with teacher's commentary is superior to the sound film, provided the teacher is familiar with the film and has prepared his commentary well. The sound film has advantages over the silent film when used for background purposes. Further, the direct teaching film should be short and should deal with specific points.

1.B.54 *The Backward Child.*

The National Committee for Audio-Visual Aids in Education, Visual Education, November 1962, pp. 10-17. (U.K.)

Purpose:

To report on a survey on the use of moving films in the teaching of backward children.

Procedure:

Reports were collected from experienced teachers of backward children, some investigations were carried out and special reviewing sessions were arranged. This material was put together into a Report in four sections—(1) defining the area of study, (2) discussing the contribution film can make and the criteria for selecting films, (3) using films, (4) list of suitable films and their sources.

Conclusions:

There is no doubt that the cine film, chosen with discrimination and used effectively can make a very real contribution to the teaching of backward children. Using films is no soft option, but the trouble involved is fully justified by the benefits derived by the children.

1.B.58 *Le film, instrument de travail, à l'école.*
(The Film, Working Tool in School.)
Pédagogie, Education et Culture, juillet 1950, pp. 414-425. (F)

Purpose:

To investigate the educational value of the teaching film and the most favourable way of using films.

Procedure:

About 3,000 boys and girls of all ages, took part in this investigation. The experiment was divided into four parts:

1. December 1948: teaching geography with and without the use of films during one term.
2. June 1949: the film "Latitude and Longitude" was shown to a class of first year High School students (Lycée). A questionnaire was given before and after the film, and eight days afterwards the teacher gave a lesson on the topic. The film was projected again eight days later and another questionnaire handed out.
3. November 1949: the film "Latitude and Longitude" was shown to pupils in the last year of elementary school. It was preceded by a lesson. Controls were taken before and after the projection.
4. October-February, 1950-51: a general experiment was carried out with teaching films during the school year in sixty-six primary school classes.

Questionnaires were given in February to sixty-six teachers, to find out how many films were presented to their pupils and which ones they preferred, what influence the films had on the students, which methods of utilisation of the films in the classroom were the most favourable.

A quantitative study by percentages was made, followed by a qualitative study to analyse the open questionnaires.

Conclusions:

For the first three tests, the results proved that films play a part in the acquisition of knowledge. From the questionnaires of the fourth experiment the following conclusions were made:

Films with many animated scenes were preferred by the children; the teachers preferred films containing many and clear schemata. Children have to be taught not to be passive during the film. The commentary given by the teacher is preferable to the commentary on the film. Results are better when the film follows the lesson and when it is projected a second time. On the whole results are good. Films help the teacher to teach.

1.B.64 *Preparting a Classroom Film by the Showing of Wall Charts.*
PIRKHEIM, F.
S.H.B. Film-Post, Wien, No. 89, 1961, 12 pp. (A)

Purpose:

An attempt to facilitate comprehension of classroom films for 7-8-year-old children attending a village school.

Procedure:

The experimenter observed that, because of the rapid changes of scene, rural children very often miss essential details of a classroom film. In order to make instruction more effective he photographed

fifteen important scenes out of the film "Road Travelled by a Letter", and made 13 × 18 cm. enlargements. These photographs plus short texts were put up on a flannelgraph in the classroom a few days prior to the showing of the film so that the children had a chance to become acquainted beforehand with the basic elements of the film.

Conclusions:

On showing the film is was obvious that the children understood the contents far better than before. With the aid of the photographs, which were now shown without the accompanying texts, they easily remembered the details of the film. The preparation and interpretation of the film with the aid of stills considerably increased the comprehension of the 7-8-year-olds and improved the quality of the instruction.

1.B.74 *The Efficiency of the Screen Cubicle.*
S.H.B. Film-Post, Wien, No. 64, 1957, 6 pp. and No. 72, 1958, 12 pp. (A)

Purpose:

In many small village schools children of different age-groups have to be taught by one teacher in one classroom. The separate showing of slides and films for one age-group is therefore difficult because it would distract the children of the other groups and necessitate either blacking out or at least dimming the classroom. In order to overcome these difficulties experiments were made with the construction of screen cubicles. Screen cubicles were made, consisting of small projection areas (70 × 70 cm. = 28 × 28 in.) screened off on all four sides by projecting black blinds: the picture thus appears at the end of a dark funnel or shaft and blacking out the classroom is not necessary. The children of the age-group for whom the showing is intended stand or sit in front of the cubicle and watch the showing. In this way the other children are undisturbed and may continue to do their work.

Conclusions:

Reports from more than twenty schools which have used this method for up to three to four years, indicate the value of screen cubicles. Teachers emphasise the fact that in some schools where several age-groups are taught simultaneously in one classroom, it had formerly been impossible to use slides and films at the appropriate point in the curriculum and they had had to be shown to children of all ages at the same time. Now, with the development of the screen cubicle, the showing may be carried out as the curriculum requires.

1.B.76 *Apport de la projection animée à l'expression écrite de l'enfant. (Contribution of Animated Films to the Written Expression of the Child.)*
SIMON, J.
Bulletin du Centre Audio-Visuel, R.18, 1961. (F)

Purpose:

To test the hypothesis that the film inspires and makes for better writing, provided that the film is suited to the mental development of the child.

Procedure:

The experiment was made on four classes of children 7-8 years old and five classes of children 8-10 years old. Each experimental class was divided into three groups:

(*a*) group "without help": essays were written without the help of audio-visual methods;

(*b*) group "slides": essays were written after the pupils had seen "stills" taken from the film;

(*c*) group "film": essays were written after seeing the film.

The film showed a grandmother waiting impatiently for her grandson to come out of school. The boy, however, preferred to go and play with his friends rather than stay with his grandmother.

Conclusions:

The results of this research show that films can directly stimulate the mind of a child. Not only does the film inspire writing, but it helps the child to write better.

1.B.79 *A Psychological Study of Film Production for Child Audiences.*
TAVISTOCK CLINIC
Petroleum Films Bureau, London, 1950, 36 pp. (U.K.)

Purpose:

Study I. A small-scale investigation to assess the effects on children of junior school age of seeing three Road Safety films: "The Ballad of the Battered Bicycle", "The Puddle Muddle Riddle", "Playing in the Road".

Study II. Children's interest in a new production was enlisted and their reactions tested throughout the preliminary stages, even before the story of the proposed film had been conceived.

Procedure:

Study I. Four Junior Schools in the Harrow district co-operated with the five psychologists of the staff of the Tavistock Clinic and Institute of Human Relations. The methods employed included various forms of activity devised to enable the children to express spontaneously how the films affected them, such as chalk drawings, story completion, play activities, all conducted by one investigator with a group of about ten children. Conclusions from this study indicated the need for closer contact with children when making children's films. This led to the secondary enquiry. The sponsors decided to make a new film on Road Safety and wished to enlist the help of children.

Study II. The purpose of the new film was to deal with road accidents caused by children suddenly darting across the road. The study was conducted in two phases. In the first week, work was done in two Harrow schools, with 8-9-year-olds, who, under the leadership of investigators, in groups of ten, evolved stories which produced varying degrees of response and participation from the children. One of these was eventually chosen and tried out on a class of 7-8-year-olds in a Primary Junior Mixed School in the Harrow area. The class was divided into three groups; two acted and gave verbal responses and the third wrote their comments. Each

phase of the story was thus subjected to the children's criticisms, which were fully discussed with the script writer. The original script was revised and the new Road Safety film was produced in 1950.

Conclusions:

Study II. The most effective way of influencing children will result from the integration of safety considerations and safety rules within a theme which gains their full interest. Great attention must be paid to the relationship that is built up between the children and adults in the film.

1.C. Films in Subject Teaching

1.C.6 *Film in the Teaching of the French Language.*
CASSOLA, S.
Quaderni Didattici, Cinetecha Scolastica, Roma, No. 2, 1953, 16 pp. (I)

Purpose:

Experimental use of film in the teaching of foreign languages.

Procedure:

Classes of Second and Third grade pupils, 12-13 years old, took part in this experiment. In some of these classes the teaching of French was done with the aid of a series of films entitled "Le Français par le Film" (by Arne Bornebusch, Europa Film, Stockholm) divided into twenty-four lessons.

The other classes were taught by the usual methods.

Conclusion:

The results showed that the films made a valuable contribution to the teaching of French.

1.C.10 *Training made Easier, Problems of Progress in Industry, No. 6.*
Department of Scientific and Industrial Research, H.M. Stationery Office, London, 1960, 50 pp. (U.K.)

Purpose:

To present briefly and simply the results of new research.

Procedure:

The problems of training are discussed in the light of four recent studies under three headings; what do trainees have to learn, how can trainees be helped to learn, and problems of application. The studies included consideration of the perceptual load as a factor in developing or retarding efficiency and the significance of visual aid in the form of a scale to give pressure measures.

Conclusion:

When a new technical device is being introduced, expert advice should be sought because theories of training have not yet been developed to the stage where they can be handed over directly to ordinary industrial staff.

1.C.23 *Une expérience d'enseignement visuel en sciences naturelles.*
(An Experiment with Visual Methods in the Teaching of Natural Science.)
LEBOUTET, L.
L'information pédagogique, Paris, 1949, No. 4, pp. 154-157, No. 5, pp. 192-194. (F)

Purpose:
To investigate the effects of visual aids in Natural Science teaching.

Procedure:
Two classes of nine- and ten-year-olds took part in the experiment. The two classes, one experimental and the other control, were compared for I.Q. (Pieron Collective test). The same teacher gave courses on the vertebrae to the two classes for four months.

In the experimental class audio-visual material was used such as live animals, stuffed animals, skeletons, filmstrips, films, episcope, etc. The control class was taught without these aids.

Periodically, and one month after the experiment, a questionnaire was given to measure the acquisition of knowledge. Only questions which tested memory were asked. In these questions the pupil had to choose the right answer, simple or multiple choice. After each test, a comparison of the results for each child in the two classes was made. For this the Student T significance test was used.

Conclusions:
The experimental class showed inferior results in the first test but was superior in the second, and all subsequent tests. Calculations show that this difference was not a chance difference. It was observed that the pupils preferred the lessons with films and that they found them more alive, more interesting and less tiring.

We can thus conclude that audio-visual aids facilitate the learning of natural science.

1.C.28 *Het gebruik van aanschouwelijke, visuele en audio-visuele hulpmiddelen bij het aardrijkskunde onderwijs op de scholen voor het V.H.M.L.*
(The Use of Visual and Audio-Visual Aids in Geography Teaching in Secondary Schools.)
MULLER-VERDUIN, H. S.
Unpublished, Amsterdam. (H)

Purpose:
To determine whether a documentary film on Hong Kong made for the general public can be made suitable for geography lessons in secondary schools by simple alterations.

Procedure:
The seventy pupils were divided into an experimental and a control group. The original version (with Dutch commentary) of the English documentary film "Hong Kong" (seventeen minutes) was shown to the control group. A second version of the same film, now with a new commentary and with some inserted maps, was shown to the experimental group. This new commentary was adapted as much as possible to the subject-matter of the geography lessons of that class. It contained motivational questions, repetitions and résumés of the scenes shown in the film.

Before seeing the film both groups had to write an essay on the subject: "What do you know about Hong Kong?"

After the film was shown all pupils had to answer the same questionnaire.

Conclusions:

There was no indication that the experimental group was superior to the control group. A better commentary seemed to be valuable, but compared to the pictorial part of the film the verbal text seems to be of secondary importance. The value of a commentary without synchronous pictures seems very doubtful. The students were not sufficiently conscious of the fact that they might learn something from the film. They see the documentary film as entertainment rather than instruction. In assimilating the content of the film the pupils need the help of a teacher. Improving the verbal text does not greatly improve the educational value of the film as a whole.

1.C.32 *Istanbul Physics Film Experiment—Technical Report.*
NELSON, K. G.; OZGENTAS, I.
Research and Measurement Bureau, Ankara, 1961, 41 pp. (T)

Purpose:

In Turkey, the shortage of teachers in general and the critical shortage of qualified teachers in the field of science in particular, in combination with the rapidly accelerated growth of student enrolments, have resulted in a serious deterioration of the quality of science education in Turkish secondary schools. The physics area has been one of those hardest hit by this teacher shortage. Almost half of the 193 academic lycée teaching positions in physics are filled by teachers who lack sufficient training in physics or experience in physics teaching to qualify as physics teachers. Also, it is likely that many of the qualified teachers lack up-to-date knowledge in physics and of methods of teaching physics. In addition the physics curriculum taught in the Turkish lycée is considered to be in serious need of revision and up-dating to bring it in line with modern developments in science technology. In most of the Turkish lycées there is a serious shortage of adequate physics laboratory and demonstration equipment; where it exists, teachers either do not know how to make proper use of the equipment or they are too busy to utilise it.

The most promising approach to be used in quickly improving the quality of science teaching and in part in easing the teacher shortage problem appears to be through the in-service education of existing science teachers. The Harvey White Physics Film Series seemed to offer a very promising approach to accomplish the in-service training of present physics teachers in Turkey, as well as providing a means of quickly up-dating the physics curriculum. However, before making plans for an extensive use of the film series in Turkey it was felt desirable to determine its usefulness in a carefully controlled experiment study.

The Ford Foundation, the I.C.A., and the Board of Education of the Ministry of Education jointly sponsored the experiment.

As is true of most experimentation in education this experiment had a research aspect and development aspect; most of the develop-

ment preceded the research. *The principal purpose of the development was to translate and adapt an experimental "package" of an American physics course including films, text books, and related instructional materials in the teaching of physics for use in Turkish lycées. The principal purpose in the research was to determine the general effectiveness of this experimental "package" in the teaching of physics in Turkish lycées.*

Procedure:

Evidence as to the usefulness and effectiveness of the instructional materials and methods were obtained by comparing the achievements in subject-matter mastery of physics of teachers and students involved in the several experimental and control groups described below. Opinions and attitudes of teacher and pupil participants with respect to specific aspects of the course were also gathered and compared.

Instructional groups to be compared:

1. Experimental Groups. These were four experimental instructional groups taught in each of six Istanbul lycées. Students were ninth-grade boys and girls who met daily six days per week for a full one-hour period of instruction in physics. The four experimental groups were taught as follows:
   (*a*) Experienced Teacher of Physics with Film;
   (*b*) Inexperienced Teacher of Physics with Film;
   (*c*) Correspondence Course;
   (*d*) Experienced Teacher without Film.
2. Ankara Control Groups. It had been planned to use three Ankara girls' lycées and three Ankara boys' lycées to make up the control groups. However, it was possible to complete student achievement testing in only one girls' lycée and one boys' lycée in Ankara. These students were enrolled in the legally prescribed course in physics which is distributed over a three-year period and was taught by experienced, qualified teachers of physics.

   The control groups were as follows:
   (*a*) Ninth-grade lycée students (boys and girls);
   (*b*) Eleventh-grade lycée students (boys and girls);
   (Literature and science majors were both included.)

Conclusions:

(*a*) Students and teachers were strongly enthusiastic in their approval and endorsement of the experimental physics course, the adapted film series, the adapted textbook, and accompanying instructional materials.

(*b*) The film series had its greatest contribution to make as an aid to in-service teacher training and in situations where no physics teachers are available.

(*c*) The adapted film series does not appear to be a desirable or necessary aid to an experienced teacher when this teacher has adequate modern textbooks and sufficient laboratory equipment available.

(*d*) An improved physics textbook reflecting modern physics developments should result in greatly improved learning in Turkish schools on the basis of the experience gained in this experiment. Where teachers are not as experienced or well

qualified it is possible that additional aids or manuals would be helpful. A possible first step in this direction would be a laboratory manual to help provide demonstration and experiments for teachers in situations where laboratory equipment is lacking.

(*e*) It is likely that the results of this experiment will not have the same outcome when applied in girls' lycées as they will in boys' lycées. The differential sex findings of this experiment should serve as a warning for others who are planning research in Turkish lycée instruction: they should take this factor into account in the design of their experiments.

(*f*) The results of this experiment show great promise for a similar application in the introduction of modern science curricula and teacher improvement for other underdeveloped countries of the world.

(*g*) Although further research is necessary, the concentration of a physics course into one year in Turkish lycées offers sufficient promise that further trial and experimentation along this line should be attempted.

1.C.34 *Onderzoek naar het gebruik van audio-visuele hulpmiddelen bij het technisch onderwijs.*
(Research into the Use of Audio-Visual Aids in Technical Education.)
PETERS, J. M. L.; SCHEFFER, M. C. J.
Den Haag, 1961. (H)

Purpose:

Part (i): To gain more insight into the part played by audio-visual aids in the process of learning, and to investigate the effects of audio-visual aids on teaching.

Part (ii): To gather as much information as possible about the administrative, technical and teaching problems and possibilities that present themselves in a school, when teachers begin to use audio-visual aids systematically in several subjects.

Procedure:

The first part of the project used three groups of ninety pupils of about sixteen years of age. The second part used several classes of twenty or thirty pupils between the ages of fourteen and sixteen (in technical schools).

Three equal groups of about fifteen pupils were taught the same subject (the four-stroke engine) by the same teacher. The first group was taught without any audio-visual aids, except drawings on the blackboard; in the second group a film (an animated colour film from General Motors) was shown as a supplement to the lesson. No comments or questions were made on the film. In the third group the film formed the starting point for the whole lesson. The same method was applied with three other groups who were instructed about the working and use of the micrometer (a *practical* subject in contrast with the *theoretical* subject of the four-stroke engine), again by the same teacher (but not the same as the one who had taught the first three groups). This time the second group was shown a filmstrip as a supplement to the teaching, and the filmstrip was used as a basis for the lesson in the third group. After the lessons each group was given an identical written examination.

In a second experiment only two equal groups of fifteen pupils were used for a more-or-less theoretical subject (about drilling). Two other groups were taught about the use of different wrenches (for screws). In the first group no use was made of any audio-visual aids. In the second one a film formed the starting point for the lesson (a film on good drilling in the first case, a film on the use of different wrenches for different purposes in the second case). Each group was submitted to a written examination on the same day.

About three months after the first written examinations were held, another written examination followed about which the pupils concerned had no prior warning. All the films and strips used were carefully analysed not only as to their contents, but also their form (quality of pictures and soundtrack, use of verbal commentary, verbal against pictorial information, construction of the film from a didactical point of view, and so on).

In (ii) six teachers of different subjects took part in the experiment. In close collaboration with the research-leaders they prepared and gave about sixty different lessons in which films, filmstrips, slides and flannelboard-material were used. These lessons were attended by one of the research-leaders. Each month a meeting with the teachers and the school-director was held, during which all kinds of problems were discussed. For each lesson a form with various questions about administrative, technical and educational problems was filled in by the teacher involved. The approach used by the research-leaders might be described as a kind of testing of methods.

Conclusions:

Part (i): On the whole the results of the lessons *without* films or filmstrips were slightly better than the results of the lessons in which these aids were used. When a film or a filmstrip was used as a starting point of the lesson the results were better than when the film or filmstrip was merely shown at the end of the lesson. But with three of the four teachers concerned the *method* of teaching (for instance, stimulating the pupils to participate by asking questions, making notes, etc.) was worse when they had to use a film or a filmstrip. Although they had all been instructed in the handling of films and strips—none of them had ever made use of films and strips before—they seemed rather embarrassed by the visual aids. There is a slight indication that the pupils who had been taught with films or filmstrips had forgotten less about the subjects taught (compared with the results of the first written examination) after three months than the others. It was very difficult to find the right films and filmstrips for the experiments, because only a short period (one or two) lessons could be given to the subject chosen and also because the pupils in question were meant to have as little special knowledge about the chosen subjects as possible. An educational analysis of the films used demonstrated that much improvement could be made in the treatment of these subjects.

Part (ii): There were all kinds of administrative difficulties connected with the use of audio-visual aids. Films sometimes arrived too late, so that the best opportunity for showing them had passed. Often a film could not be kept long enough to enable the teacher to prepare his lesson sufficiently. Catalogues from film distributors often give insufficient information.

Since a school can have its own supply of filmstrips, these difficulties do not apply to filmstrips. There are technical difficulties; teachers may not be able to handle projection-equipment. Even in relatively modern school-buildings projection conditions (black-out) are not always adequate. Much time is lost in going from one classroom to another one better equipped for the use of audio-visual aids. Most teachers are not sufficiently aware of the educational qualities a film or filmstrip must have, or of the methodological implications of using audio-visual aids. In this respect the use of filmstrips or of flannelboard-material offers fewer problems than the use of films, apparently because filmstrips and flannelboard are closer to the older teaching-devices and teaching-methods than films.

1.C.37 *British Courses for Adults in Effective Reading.*
POULTON, E. C.
British Journal of Educational Psychology, Vol. XXXI, 1961, pp. 128-137. (U.K.)

Purpose:
To summarise the results so far obtained in this country from using courses on effective reading for adults.

Procedure:
The main problem is that for many people the rate of reading never catches up with the maximum rate of comprehension, and reference is made to studies in this field. The Harvard course comprising sixteen training films and eighteen reading passages, has been the basis of development for courses designed to improve reading speed and to teach adults to alter their rate of reading according to the material being read. Comprehension is tested by ten multiple choice questions. British modifications of the Harvard course consist of substitution of reading passages taken from contemporary British sources and in Scotland from commercial topics. The method of testing differs from the Harvard one, in that five specific questions are set, to be answered in the student's own words; for this a precise scoring key is used. The results of forty courses (most of these given in Britain between 1952 and 1959) have been assembled by the author and presented in a table. Certain aspects of the courses are commented on and lines for further study are indicated. The author draws certain general conclusions from the work in this and closely related fields.

Conclusions:
Ideally the material in the films should be more suited to British students, and there should be some films of medium difficulty. (The only new films, made by Carborundum, use a visible segment which moves continuously along the line instead of jumping from fixation to fixation as do the Harvard films. This technique needs validation.) Films which show at least two lines of text at a time are preferable. It appears that films are not an essential part of the course at all, although they do make it more attractive. The enthusiasm of the instructor for his chosen method is probably more important than the method itself. Multiple choice tests of comprehension are an unsatisfactory feature of the Harvard course, because they test recognition, not comprehension; they tend to oversimplify for the sake of brevity and there tends to be an unsatisfactorily large chance element in the results.

1.C.46 *An Experiment in the Teaching Value of a Scientific Film.*
LEWIS, E.; STEINBERG, H.
British Medical Journal, Vol. XXI, 1951, p. 465. (U.K.)

Purpose:

To assess the teaching value of a psychological teaching film "The Carotid Sinus" to a group of medical students at University College, London, with special attention to students' own evaluation of the film, changes in their factual knowledge and specific features of the film which might influence both its teaching efficiency and its appreciation by the students.

Procedure:

Over a period of 2½ months a group of medical students was tested four times with the same questionnaire in the usual teaching time at University College, London, Medical School. The class was randomly divided into two equal groups A and B, and tested with the questionnaire. Three days later group A was shown the film and both groups were tested four days later. After an interval of two months all completed the questionnaire; one day later group B was shown the film and four days later all completed the questionnaire. In addition, after the last showing an Appraisal Form was completed by group A.

Conclusions:

Significant increases in knowledge were found after showing the film to both groups in these and different experimental situations. The students' judgments of the film were overwhelmingly favourable. An analysis of the answers given to individual questions before and after showing the film points to further important areas of research.

1.C.47 *Etude de la contribution d'un film historique composé à partir de métrages d'actualitiés a l'enseignement de l'histoire dans le second degré.*
(Study of the Contribution of an Historical Film made of Documentary Shots for teaching History in the Secondary School.)
TARDY, M.
Centre Audio-Visuel del'Ecole Normale Supérieur de Saint-Cloud, 1960, Section récherches No. R.10, 33 pp. (F)

Purpose:

Study on the effects of a history film shown to Secondary School pupils.

Procedure:

The projection of a film on Fascism in Italy. A questionnaire was handed out to study the attitudes of the students to the film: some take their attitudes from the contents of the film, others integrate the ideas contained in the film into their own way of thinking. The attitudes of the students were studied at two levels: before the film and through the investigator's questions. This study was made to define the effect of the film and to show that this effect is not always categorically determined, but that it varies from one group of students to another.

Conclusions:

This study shows that there is no direct relationship between the subject matter of the film and the answers given by the students. The film does contain certain elements which may affect the opinions of the students, and these elements were assimilated to varying degrees by the students. The film is also an efficient means of imparting knowledge and of encouraging independent thought. These two different effects should be taken into account when studying the pedagogic value of a film of this nature.

1.D. Reaction to film (comprehension, remembering, evaluation, film language).

1.D.10 *L'importance de la suggestibilité dans la situation cinématographique.*
(The Suggestive Power of the Film Medium.)
BOUMAN, J. C. ; HEUYER, E. ; LEBOVICI, S.
Revue International de Filmologie, Paris, IV (13), avril-juin, 1953, pp. 111-141. (F)

Purpose:

To study phenomena of identification by using methods and data of social psychology.

Procedure:

150 students in medicine, psychology, law and filmology took part in this experiment. The students were divided into four random groups and shown a film drama with five characters and no defined plot. No explanation was given to the fourth (control) group before the projection.

It was explained to the first group that the plot had to do with a killing of two people by two others, the fifth character being the witness.

The same explanations were given to group two, reversing the roles of the killers and their victims.

The characters were named and their situation in the plot on the screen were given to the third group.

During the projection two tape recorders and a camera were used. After the projection, a questionnaire was given out, to find the reactions to the characters and the situations in the film and the subjects were also asked to write down the story of the film according to their own impressions.

A statistical (percentage) and a quantitative analysis were made of the answers.

Conclusions:

The instructions given to Group I and II influenced their effective choice. There was a principal role, that of an isolated woman, which received the maximum votes of sympathy from the audience which consisted mainly of men.

It was also found that the story was much more vivid in Groups I and II, than in Groups III and IV. In the first two groups most of the spectators tended to see a sexual significance in the drama. In the other two groups, however, the factors of identification and projection were more important.

1.D.11 ***Das Kind zwischen Spielfilm und Schulfilm.***
(The Child between the Feature Film and the Classroom Film.)
BRUDNY, W.
Dissertation, Universität München, 1954, 395 pp. (G)

Purpose:

This research tests how far pupils understand sequences of films.

Procedure:

Children and adolescents from 7-16 years took part in this experiment. The main part of the experiment consisted of behaviour-measurement by infra-red photography. A test film was produced to show how children understand films.

The tests carried out with the test film demonstrate that isolated sequences are understood very well if they are rich in imagery.

107 teachers filled in a questionnaire on the test film.

202 teachers filled in a questionnaire on seven silent and sound films. The correlation is very high, 0·74.

Conclusions:

Children understand the language of film much better than most psychologists think. Flashbacks are seldom understood by children under twelve years, although they can understand even quite complicated diagrams. If films deal with abstract logical facts children need a very thorough introduction; if details of the film do not belong to the action children do not understand them. This experiment shows that film is an excellent medium for educating children and adolescents.

1.D.24 ***Nachhaltigkeit von Filmerlebnissen bei Kindern und Jugendlichen.***
(Retention of Film Experiences with Children and Adolescents.)
FOERSTER, O.
Film Bild Ton, IX, 9, München, 1959, 5 pp. (G)

Purpose:

This research investigates the emotions of children and adolescents after seeing films.

Procedure:

1,230 children and adolescents (10-18 years) took part in the investigation.

1,120 of these 1,230 subjects succeeded in relating and writing one to four scenes from films they had seen some time ago.

About 1,000 stories were examined with interviews and questionnaires.

Conclusions:

There are three types of emotionally conditioned factors in remembering scenes of films.

1. The concrete-dynamic type, i.e. following the action of the scene. Very often eidetic pictures can be found.
2. The "abstract-retrospective" type, that is remembering the story of the film. This is to be found especially in the age group 16-18 years and with pupils of grammar schools.
3. The "affective" type, that is remembering scenes of a strongly emotional content.

1.D.25 *Sur la mémoire des films.*
(On Remembering Films.)

FRAISSE, P. ; MONTMOLLIN, G. DE

Revue Internationale de Filmologie, 1952, 9, pp. 37-68. (F)

Purpose:

To find out how much of a film is remembered and what held the interest from the psychological point of view.

Procedure:

The first group consisted of fifteen students and the second group of 100 students.

The first group was tested for memory of the film content immediately after the projection of a film, and a second test was given fifteen days later.

The second group was given only one test, immediately after the projection. The purpose of the tests was explained to the subjects, and they were then presented alternately with two different sound film sequences; one was an extract of dramatic montage sequences from an old film, "The White Truck", describing an accident with the truck; the other was a newsreel sequence with four scenes: an American football match, a fashion show, the return home of some German soldiers and the sinking of an old boat. After the projection the subjects were asked to write down in two columns what they had seen and heard.

A distinction was made between what could be called recollection (of one shot) and condensed recollection (which consists of several shots recalled as a whole). Graphs were made, established shot by shot according to the profile analysis method for more detailed qualitative analysis. For the study of sounds only a global analysis was used. The same method was used for the selective memory test as the sample was small.

Conclusions:

More than one-third of the visual contents of the film are forgotten immediately, and what is retained lacks precision. Only one-third of the shots are specifically recalled. Several factors influence immediate memory, among them the meaning of the film and the importance of the shots (shots essential to the dramatic action are remembered). In a news film the shots which illustrate the commentary clearly are retained. Memory is influenced by the type and length of shot used (long shots are remembered better in newsreels). As far as sounds are concerned there is an ever greater decrement. On an average one-third of the commentary is retained. Mainly those sounds are retained which have a significant connection with the action.

In conclusion it was found that in remembering films the memory process is one of reconstruction rather than recollection.

1.D.26 *Film—Influence on Attitudes—Preparation.*
FURHAMMAR, L.
Licentiate treatise, University of Uppsala, 1963, unpublished. (S)

Purpose:
To measure how attitudes are influenced by two films—the Kaj Munk film "Ordet" and "Pimpernel Smith"; the connection between different background variables; how two different previous attitudes were affected by the films.

Procedure:
150-250 pupils from Grade Six of the comprehensive school were test subjects. The investigation included two experiments. One measured the influence of the film "Ordet" on the attitudes towards miracles. The other measured the influence of "Pimpernel Smith" on the attitudes towards Germans.

Conclusion:
The film "Ordet" significantly changed the attitudes towards miracles in a *negative* direction of those who originally were most negative to religion ("boomerang effect"), and in a *positive* direction of the originally neutral subjects. The subjects with positive religious attitudes were not influenced at all.
"Pimpernel Smith" had a strong negative effect on the attitudes towards Germans.

1.D.29 *Introduction to the Grammar and Syntax of Films.*
GIANNI, A.
Centro Provinciale Sussidi Audiovisivi, La Spezia, 1957-59, 11 pp. (I)

Purpose:
To spread knowledge of cinematographic language among teachers and pupils for educational purposes.

Procedure:
250 pupils from fifteen to eighteen years old took part in this experiment. Systematic observations (with questionnaires) were made on the educational results of film lessons.

Conclusions:
The results showed that successful preparation of the pupils for understanding films had been carried out.

1.D.31 *Filmerleben—Filmwirkung—Filmerziehung.*
(Seeing a Film—Its Impact and Its Message.)
HEINRICH, K.
Hermann Schröder Verlag, Hannover, 1961, 372 pp. (G)

Purpose:
This research studies the influence of film on the aggressiveness of young people.

Procedure:
The experiment took place in Frankfurt am Main and nearby places in 1958-1960. Attitudes-scale, Sentence-scale corresponding with the scales of Peterson and Thurstone were used: 4,277 subjects to develop the aggressivity scale, 2,247 subjects for the main test. Only classes accompanied by their teachers were tested before and after the films were shown.

Age: 12-20 years. The first nine tests had 90-150 subjects, the last two about 600.

After three films ("Stadt in Angst", "Die Saat der Gewalt" and "Hollenhunde des Pazifik") a highly significant increase of aggressivity was noted. After the film "Schneewittchen und die sieben Zwerge" there was a highly significant decrease in aggressive tendencies. All the other films caused no significant changes in aggressivity.

Conclusions:

The most important fact for aggressive behaviour is the sex of the subject. After the film "Hollenhunde des Pazifik" girls are more aggressive; after the film "Die Saat der Gewalt" girls are non-aggressive. Boys have exactly the opposite reaction.

The next important factor is personal identification. Films further aggressive attitudes if they have an aggressively dynamic and realistic action.

Films that allow identification with peaceful persons and have an "anti-hero with a bad character" reduce aggressive behaviour. Persons with extreme attitudes cannot be influenced by films. Learning through film depends on identification.

1.D.36 *The "How-to-do-it" Teaching Film; an Experiment in its Use.*
HUGHES, W. H.; COLLARD, P.; CARDEW, P. N.
The Lancet, Vol. CCLXV, 1953, pp. 484-485. (U.K.)

Purpose:

To study the effect of teaching a technique by film compared with "live" teaching by a group of demonstrators.

Procedure:

During one teaching period in Guy's Hospital Medical School and in St. Mary's Hospital Medical School, London, students at the beginning of their course of instruction in bacteriology were instructed by two methods. Group I was shown the silent colour film "How to Inoculate a Plate" (eight minutes, designed solely for students of bacteriology). Group II was sub-divided into groups of six or eight, and each group was shown the procedure by a demonstrator. The time taken was not allowed to exceed eight minutes. Directly afterwards all students were given samples of an eighteen-hour broth culture of staphylococci, which they cultured on to a blood agar plate. The backs of the plates were given random numbers for identification purposes and then incubated. The plates were photographed after incubation and marking was done from the photographs. The culture plates provided a tangible measure of acquired skill. Each of the main points to be learnt from the film was marked in order of importance and the marking system was checked by re-marking a proportion of the plates unknown to the examiners.

Conclusions:

In comparing the brief technique-film with "live" teaching, no significant difference appeared between the two groups. This is taken to indicate that either the film or live teaching can be used

with equal effect; therefore choice between these methods of teaching can be determined only by the size of the class and factors of convenience. There is need for further tests and more films of this kind.

1.D.46 *Some Factors Influencing the Effectiveness of an Educational Film.*
LANER, S.
British Journal of Psychology, Vol. XLVI, Part 4, 1955, pp. 280-292. (U.K.)

Purpose:

To bring out as clearly as possible whatever special effects might be contributed by realistic portrayal, especially represented motion, and to attempt to analyse out factors in film communication which appear to influence the perceptual process in specific ways.

Procedure:

Fifty male University students were used as subjects. Half were shown part of an explanatory film about the Bren Gun, and half were given, in textual form, the commentary of the portion of the film shown, omitting repetitive statements and supplemented with two static diagrams.

The film-showing lasted 10 minutes 15 seconds and the text instructed subjects were allowed the same period of time for their study. Subjects were asked to draw a rough sketch of the trigger mechanism and insert any names of parts remembered; they were asked eighteen questions orally, and finally given the seven component parts and asked to assemble them.

The sketches were classified according to whether the mechanism as drawn, would "work" or "not work", and analysed in respect of:
(*a*) inclusion of a part,
(*b*) functional shape of parts represented and
(*c*) functional position of the part.

The oral questioning was recorded in terms of answers being correct, doubtful, wrong, no answer. The time taken to assemble the trigger mechanism was studied statistically.

Conclusions:

It was concluded that realistic pictorial portrayal contributed little to instructional effectiveness. A number of factors in the film medium appear to be more important in this respect.

1.D.48 *Etude du comportement émotionnel enfantin au cours de la projection d'un film comique.*
(Study of the Emotional Reactions of Children to a Film Comedy.)
LEROY-BOUSSION, A.
Revue International de Filmologie, 1954, 17, pp. 105-123. (F)

Purpose:

To study the behaviour of children while seeing a comic film.

Procedure:

222 children (boys and girls) took part in this experiment. 222 projections of the film "Charlot fait une Cure" were organised with groups of children. During each projection the examiner could only watch one child, chosen at random. After the projection teachers were asked questions about the intelligence and personality of the child. The children who noticed that they were being observed were eliminated.

Notes taken during the projection were transferred to observation sheets divided into three columns. In the first there was a résumé of the sixty-two jokes in the film. In the second column, beside each joke the observer noted down the reactions of the child, pleasure or fear. The third column had a description of the reactions and additional notes.

A quantitative analysis was made according to the factors of age and sex, and after this an analysis of how intelligence and social milieu were related to laughter. To test the validity of the differences observed, Festinger's "Methodes des Rangs" was used. For the last two factors the chi squared method was applied.

Conclusions:

(*a*) The age factor: children laugh more and more up to the age of nine or ten, where a level is reached.

(*b*) The sex factor: boys have a greater tendency to laugh than girls. The differences are not significant in the beginning, but increase with age and become significant after the age of six. Thus the peak is reached earlier with boys than with girls.

(*c*) The intellectual factor: an older child can understand different situations more easily in a comical film, but the frequency of laughter does not follow the intellectual curve because of other factors (temperament, timidity, and the family situation) which can modify the tendency to show pleasure.

(*d*) Social milieu factor: the children tested came from the suburbs, working-class neighbourhoods, and expensive neighbourhoods. Suburban children laughed much less than city children.

Conclusions:

This research was limited to the study of laughter. Future studies will be made on fear (which appeared in the analysis of results), the intermediate emotional behaviour, and the analysis of the film test.

1.D.55 *Expérience sur la compréhension du langage cinématographique par l'enfant.*
(Experiment on the Comprehension of Film Language by Children.)
MIALARET, G.; MELIES, M. G.
Revue International de Filmologie, Paris, V, 18-19, 1954, pp. 221-228. (F)

Purpose:

To study the criteria of understanding of a film by the child.

Procedure:

Three groups of children, forty-five in all, took part in this experiment. Three films were made on the same subject; a little girl awakens in the night, goes upstairs to the attic, finds a ballet dancer's dress and ballet shoes. She puts them on and dances. While dancing she breaks a vase. Her mother hears and comes in and puts her to bed. She falls asleep holding the rose she wore on the dress while dancing. The beginning of each film is the same. The experimental part is made up as follows:

First film: this only had general shots, the subjects were always seen as a whole and were followed by the camera. The film time coincided with actual time. There were eighteen shots of about seventeen seconds each.

Second film: the new elements were the changing of scale, reverse angle, parallel editing, various speeds, symbolic language (shadow dance on wall). There were thirty-seven shots of about eighty-eight seconds each.

Third film: all necessary forms of film language were used; dissolving, subjective camera views and the film space was broken up. There were fifty-one shots of about five seconds each. The three films were shown to children in each group. After the projection each child was asked to give a short description of what they saw. Then more precise questions were posed. After this the children were asked to choose from a number of pictures those that were in the film. Finally they were asked to put objects in their place in a model of the attic in the film.

An analysis permitted the study of the different factors and their interactions:

1. Age,
2. Film language,
3. Film contents.

Conclusions:

First Results: Certain technical difficulties (shooting script) affect understanding; parallel editing shows that young people are incapable of utilising the elements of the end of the film to localise the place where the little girl danced. It was also noted that the children found it almost impossible to locate the elements of the stage set.

1.D.59 *Langage cinématographique et public d'éducation de base.*
(Cinema Language in Basic Education.)

NANNONI, R.

Mémoire dactylographié, Centre Audio-Visuel de l'Ecole Normale Supérieure de Saint-Cloud, 1963. (F)

Purpose:

To study the reactions of a basic education group to film language, in order to specify certain elements of the pedagogy of films.

Procedure:

The experiments were carried out in three parts: first, the students were asked to draw a crate, after which they saw a film called "A Crate"; secondly, they were asked to draw a ladder "standing-up" and "on the ground"; thirdly, to draw the crate after they had seen the film. The procedure and the experimental conditions were not identical for all the groups of subjects.

Conclusions:

The result of this study shows that the majority of subjects are capable of drawing before the film and that the film seems to be suitable for subjects that already know how to read and write. But the film was projected to an audience that was not prepared and furthermore, the complex problem of perspective was included. Perspective is taught in France in classes for twelve- and thirteen-year-olds at a level higher than that of African workmen in Paris. The question to be considered is whether the conclusions reached with African workmen living in Paris in an industrialised society can also be applied to Africans and Algerians on a basic education level. On the whole it seems that they can, as there are few societies nowadays which have had no contacts with modern civilisation.

1.D.60 *Was bleibt? Kinder besinnen sich auf einen Film.*
(What Remains?—Children Reflect on a Film.)
PAULSEN, K.
Film Bild Ton, VII, 7, München, 1957, 7 pp. (G)

Purpose:

This research investigates eleven-year-old children with regard to their memory and understanding of films.

Procedure:

The film "Peppino und Violetta" was shown to fifty-one children aged eleven years. The children had to write down the story immediately after seeing the film. Two years later the children had to write down the story again. The same procedure was repeated with other films.

The children tested went to the cinema two to eighteen times a month, the average being 4·3 times a month.

Conclusion:

Immediately after the film there were a lot of details of the story in the children's reports; the story as a whole was not so clear.

Two years later many details were omitted in the children's reports but the story as a whole was remembered.

Love of animals is dominant in all reports.

1.D.68 *La Perception d'un ensemble de déplacements.*
(Perception of a Series of Displacements.)
REY, A.
Revue International de Filmologie, No. 17, avril-juin, 1954, pp. 75-92. (F)

Purpose:

To understand how we perceive a series of displacements.

Procedure:

The first experiment was made with fifteen adults and a second one with adults and with children ranging in age from 4-12, divided into eight age groups. (Twenty people to a group.) A third experiment was made with twenty adults and twenty children ranging in age from 6-7 years.

First Experiment. Ten small spheres irregularly distributed in a rectangular space of 30 × 18 cm. were placed before each subject. The spheres were made to move in different directions and at different speeds by the use of a lever. The subjects were then asked to note down on paper the original position of these spheres, and the changes observed.

Second Experiment. The changing of the places of the spheres was limited to simultaneous horizontal movements. The apparatus was a rectangular window of 5 × 10 cm. in height which was moved, by a mechanism, either to the right or to the left. Eleven types of displacements were presented to the subject one after the other, each figure more and more complex. The subject was asked to note down after each figure the changes observed.

Third Experiment. Less artificial material was used consisting of a marionette that executed five different movements at the same time in a horizontal plane. The subject was then asked to reproduce with a second marionette the movements observed.

Measurements:

First Test. Each correct answer was noted down for each sphere (making an angle of 20° with the real direction) and each incorrect answer was noted, after which a comparative study was made.

Second Test. Three types of errors were possible: no perception of mobile point (this error was practically non-existent), false localisation, direction error. Two pictures were obtained, the first giving the success totals achieved by each age group for the two separate trials, and the second one showing successes in correct localisation. A comparative analysis was made of the results.

Third Test. From each group were noted the total numbers of observed movements, the number of correct movements, the number of forgotten movements, the number of incorrect movements. Finally a global analysis was made.

Conclusions:

Films with scenes of too great cinematic complexity must be avoided, and the importance of repetition should not be underestimated.

1.D.85 *Das Problem der Filmwirkung.*
(The Problem of the Impact of Films.)
WÖLKER, H.
Bouvier-Verlag, Bonn, 1955, 149 pp. (G)

Purpose:

This research investigates the influence of film on young people.

Procedure:

Short films were produced according to the thematic-apperception-test (TAT). Then the differences between the effectiveness of film and picture were investigated using 120 young people. The comparative analysis of the content of pictures with the content of films show that there are significant differences between the effectiveness of both media.

Conclusions:

Most important in understanding the effectiveness of films is the factor of identification. Identification can be sub-divided into:

(*a*) identification in a narrow sense,

(*b*) identification in a wide sense.

The latter can be described as film-identification. Here the spectator thinks only in the way the film forces him to think. He has no opinion of his own; his thoughts and emotions are absorbed by the wider action of the film. Out of this fact (identification in a wider sense) identification in a narrower sense as identification with persons is developed.

1.D.86 *Les réactions psychologiques de l'enfant devant l'écran. (Psychological Reactions of Children to Films.)*

ZAZZO, R.

Le film au service de la première éducation, Bourrelier, 1954, pp. 26-34. (F)

Purpose:

To investigate the effect of films in kindergarten and to study the comprehension of films by the young child.

Procedure:

In the first experiment, thirty-nine boys and girls took part. In the second three groups of children (twenty-three, thirty and twenty-six in each group) of 5-6 years took part. In the first experiment a film (Christmas Dream) was shown which can be divided into four sequences. Discussion with the children revealed what global understanding they had of the film and what comprehension they had of each of the four principal sequences.

The second experiment was to compare the enrichment received by the children in three different presentations: film, filmstrip and direct contact with reality. The theme chosen was the giraffe. A film of three and a half minutes was made. The filmstrip was made up of twenty pictures projected for fifteen seconds each. A visit to the zoo, fifteen minutes, of which five minutes were recreative. The children were asked to draw a giraffe before and after the presentation.

Conclusions:

The first experiment: few children seemed really to understand the film as a whole. On the other hand the partial comprehension of the different sequences was better. Thus we see that a partial comprehension of sequences is not enough in understanding the whole but there is no comprehension of the whole without a minimum comprehension of the parts.

That there was partial comprehension only was due to the fact that certain images or scenes were too short, also to the difficulty of identification of the parts; to the fact that film conventions of all kinds are not understood; that the impression of reality of the pictures animated the impression of the story. The result was that the child could not tell the story of the film as a whole. In the second experiment the rank-order of the three presentations was: first the film, second the real presentation and third the filmstrip. Static elements of the subject were revealed better by the filmstrip, and dynamic elements by the film. A film used judiciously can be of help to the kindergarten teacher.

1.D.87 ***Analyse des difficultés d'une séquence cinématographique par la conduite du recit chez l'enfant.***
(An Analysis of the Difficulties of a Film Sequence through the Description given by the Child.)
ZAZZO, R.; ZAZZO, B.
Revue Internationale de Filmologie, 1952, 9, pp. 26-36. (F)

Purpose:

The continuation of two former research projects "*Mental level and understanding of films*".

Procedure:

The research includes an experiment described in another paper. Fifty-three girls (aged 6-12) took part in the experiment and were divided into six age-groups of about seven children each.

A film sequence was shown which showed the revolt of a group of boys in a prison against a group of gangsters who were trying to lead them astray. The film can be divided into four sections:

1. The meeting of the two groups;
2. Escape and chase towards the house;
3. The siege of the house (attack and defence);
4. Arrival of the police and the arrest of the smaller group.

The tests were as follows:

The child described the film;

The child was questioned on certain specific points;

The child was asked to classify the photographs of the film which could only be classified by subjects having seen and understood the film.

(Two tests, one with four pictures, the other with nine pictures were given.)

Conclusions:

The success in classifying the four pictures is seen already at six years old and becomes stable at the age of seven years, but the verbal account is correct only after the age of ten. Classifying the nine pictures requires a special effort of organisation. The whole must be reconstructed with elements of unequal importance; the relationships are no longer chronological but arranged in order of importance. We find a complete failure even with the oldest group.

We can find a relationship between the correct classification of the nine pictures and the recitals of type four. But the verbal test is no longer three years in advance of the visual test. A child that has good verbal organisation nevertheless finds it difficult to organise the photographic material, as he misunderstands the medium and conventions of the cinema.

It is found that—

1. Children understand the unfolding of action very early (seven years old) thanks to the dynamic quality of the film and the visual and concrete character of a film presentation. The most difficult thing in a film is its grammar, and above all the symbolic use of time.

2. The difficulties become greater with the length of the film, because of the impossibility of referring back to the past, the more complicated script and the use of symbols.

SECTION 2

STILL PROJECTED MEDIA

2.A.20 ***Etudes sur l'évolution de l'aptitude des sujets à lire des vues fixes et introduction à une étude sur la lisibilité des vues fixes.***
(Studies in the Development of the Ability of Individuals to read Still Pictures and Introduction to the Study of Readability of Still Pictures.)
GUENOT, J. ; STURGE-MOORE, C. ; TARDY, M.
Etudes de linguistique appliquées, 1962, No. 2, pp. 104-135. (F)

Purpose:

This research had two objectives:

1. To determine the degree of legibility of slides used in the teaching of English to adult beginners by the method "Lend me your Ears".
2. To measure the development of the ability of the adult subjects to read the slides.

Procedure:

Four series of slides were shown:

(*a*) to a control-group (composed of subjects who did not know the method),

(*b*) to an experimental group (composed of subjects who had followed an English course with this method),

after which the two groups were asked to answer questions corresponding to each slide.

Conclusions:

The analysis of the results obtained showed an improvement in the capacity of the subjects to read the slides. It also helped to determine those elements of an image which disturbed comprehension and those which, on the contrary, made comprehension easier.

2.A.22 *An Investigation into the Value of the Filmstrip and Educational Visits as Methods of Instruction to Secondary Modern School Pupils of 14-15 years.*

HALLIWELL, S.

Thesis for M.Ed. degree, University of Manchester, 1962.

Purpose:

To discover the comparative effectiveness of three visual methods of teaching as means of giving factual knowledge. The three methods were a filmstrip alone, an educational visit alone, combined use of both visit and filmstrip.

Procedure:

The instruction lasted one hour, the tests were set one week later. The study was carried out in five secondary modern schools in Lancashire. It involved thirteen teachers and 424 pupils, aged 14-15 years. The teachers and schools were classified as good, average and poor, while pupils were separated for intelligence into higher (95+), middle (85-95) and lower (below 85). Two topics, "A Dairy" and "A Newspaper Works", were selected for study by means of filmstrip and by means of a visit. Each test required forty answers to various kinds of "new type" questions. In all cases the results were adjusted to make allowance for influence of other variables and showed that despite any influence from the intelligence of the pupils, quality of school or teacher, the combined method was best.

Conclusions:

Good results are obtained from good teachers, good schools and higher levels of intelligence. The combined method of teaching is the best, the visit method second best and the filmstrip method the poorest of the three. Nevertheless, the influence of the interaction of methods with teacher, types or schools is so strong that it is not always possible to guarantee the above order of effectiveness. There is reason to believe that the "out of school" method can compensate for poor quality of teaching, while visual-aid methods are particularly suitable for the average type of pupil found in a secondary modern school.

2.A.27 *Trois expériences sur l'utilisation des techniques audio-visuelles pour l'enseignement de la géographie et des sciences naturelles dans les classes du premier degré.*
(Three Experiments on the Use of Audio-Visual Techniques in the Teaching of Geography and Natural History at the Primary School Level.)

LEBOUTET, H. *et* L. ; LEFRANC, R. ; NOZET, H.

Cahiers du cinéma éducatif 1949, I, juin.

Bulletin de recherche du Centre Audio-Visuel, 1949, 17 pp. (F)

Purpose:

To study the pedagogical efficiency of audio-visual media in the acquisition and memorisation of knowledge.

Procedure:

150 children took part in this experiment; two classes (FE) at the top of the school (12 to 14 years), two classes (CM) at the intermediate grade (10 to 12 years) and two (CE) at the elementary grade (8 to 10 years).

There was one experimental class and one control class at each age level. The pupils' level at the beginning of the experiment was determined by written exercises on the subject to be studied. The same teacher taught both classes at a given level and at the end of the experiment progress was measured. A month later memorisation was tested.

At the elementary level, the children studied mountains; a vertebrate animal was studied at the intermediate level, and the Paris Basin was studied at the final level.

In the experimental classes filmstrips were used extensively and films (mainly silent) a little. We tried to obtain an integration of these visual media into the lessons. The children were asked questions and then made a written précis. In the control classes pictures, picture postcards, drawings, mural maps, objects and animals were used. The documents were studied and the teacher proceeded in the same manner as with the filmstrips: questions and précis.

The children were divided up according to the results of intelligence tests. At elementary level: Gilles' mosaic test; at intermediate level: Pieron's intelligence test. After testing the results, only fifteen pupils were kept in each class. At the final level the averages were equivalent, and all the pupils were kept.

Conclusions:

In the beginning the levels of the experimental and control groups were the same, except for the CE (elementary) group where the control group's results were better.

After a month experimental classes had better results than control classes and at the end of the experiment the superiority of experimental groups was even greater.

The memorisation test given a month later confirmed the advantage of the experimental groups.

It was interesting to note that there was less difference between "good" and "bad" pupils in the experimental group.

Other factors in favour of the experimental classes were noticed but not studied statistically: more interest, creative activities, drawing, better control over emotions, better teacher-pupil relationship, good discipline.

The experiment showed the great advantage of using audio-visual media.

2.A.37 ***Overt and Covert Response Modes with Pictorial and Non-Pictorial Stimuli in Learning Turkish Words.***

OZTILMEN, N.

Indiana University, 1963. (T)

Purpose:

Eighteen Turkish words were selected among the most frequently used words. Four different kinds of slide were made from each word:

(*a*) picture plus printed Turkish word;

(*b*) printed English word plus printed Turkish word;

(*c*) picture only;

(*d*) printed English word alone.

There were three kinds of "stimuli" in this experiment:

1. vocally spelt and pronounced Turkish word plus picture plus printed Turkish word;
2. vocally spelt and pronounced Turkish word plus printed English word plus printed Turkish word;
3. vocally spelt and pronounced Turkish word plus pronounced English word.

Three kinds of "Practice Response Modes" were also in the experiment:

1. writing the Turkish word;
2. pronouncing the Turkish word;
3. thinking of the Turkish word only.

The stimulus and practice conditions were presented to each subject in an order determined by a "Greco-Latin Design".

The Hypotheses:

1. Picture is a better stimulus than printed-word-only in foreign vocabulary learning.
2. Presentation with pictures and printed words is more effective than presentation with sound only.
3. Pictures are relatively more effective for word retention.
4. Overt practice responses (written and pronounced) are more effective for learning vocabulary.

Procedure:

The order of events in presenting one Turkish word was as follows:

1. Presentation of one of the three stimulus terms.
2. After one second's delay the next stimulus was presented, consisting of either the picture alone, printed English word alone, or pronounced English word alone. The kind of stimulus depended upon the one that was used in the first step. At the same time, experimenter said either "write the word, please", "pronounce the word, please" or "think only, please". Thus, the subject's participation was in the form of writing, pronouncing and thinking.
3. In this third step, the same stimuli used in the first step were presented exactly in the same way to allow the subject to check his response.

Immediately after the presentation, the subject took a test. Twenty-eight days later, subjects were given a recall and a recognition test.

Conclusions:

1. The first, second and third hypotheses were given some support.
2. Written practice response method may be more effective for immediate learning.
3. Thinking of the words as a practice may be more effective than pronounciation in immediate learning for educated adults.
4. Pronounciation of the words as practice response may interfere with learning foreign vocabulary when compared with writing and thinking.

2.A.47 ***An Experimental and Critical Investigation into the Efficiency of Pictorial Aids in Education with Differing Age Groups.***

VASISHTA, V. A.

Thesis for M.A. degree, University of London, 1958.

Purpose:

To enquire into the validity and reliability of pictorial aids in education, particularly at secondary and primary age levels.

Procedure:

148 boys and girls in secondary modern school and at its junior stage were tested; the children were from working-class families, living in an industrial area. Two methods of teaching, one with a filmstrip on "Village Life in India" and another without the filmstrip, were compared. After the lessons the pupils were tested by means of a questionnaire consisting of thirty-five multiple choice questions. The questions were designed to test memory and bring out comprehension. Three possible important disturbing factors—age, intelligence and ability to understand written English—and their effects on test responses, were eliminated to give more efficient tests of significance. Analysis of co-variance blended with other suitable statistical means were employed in analysing the results.

Conclusions:

The results do not establish the clear-cut superiority of the filmstrip, but tend to favour it slightly. In the type of test used, the most significant factor is the general intelligence of the pupil. Not all learning is enhanced by the use of pictures and those that are effective with one group will not necessarily prove to be so with another, though with the secondary group, certain points were more clearly explained by pictures to all pupils. The author suggests that a large-scale experiment is necessary to allow for the study of the interaction of other factors such as teaching technique, social climate of the classroom and socio-economic level of the pupils.

SECTION 3

NON-PROJECTED MEDIA

(Charts, models, reliefs, flannelgraphs, etc.)

3.A.9 ***What I Know about Making Drawings for Children.***
BETHERS, R.
Visual Education, October 1956, London. (U.K.)

Purpose:

To find out children's preferences in styles of picture.

Procedure:

Six versions of the same scene ranging from unimaginative photograph, simplified factual reporting, poorly drawn factual reporting, imaginative reporting, childlike interpretation and contemporary interpretation, were published in "Visual Education" in May 1956, with a request to teachers to get as many children as possible to place them in a rank order. Reactions were obtained from 5,500 children and over 100 teachers and a few from foreign sources. The results were plotted on graphs.

Conclusions:

Imaginative pictures should be used for teaching small children and factual pictures as they grow older.

3.A.19 ***The Effect of Names and Titles upon the Serial Reproduction of Pictorial and Verbal Material.***
HALL, K. R. L.
British Journal of Psychology, Vol. XLI, 1950, pp. 109-121. (U.K.)

Purpose:

To determine what effect the names and titles provided for drawings or verbal passages have upon the reproductions made.

Procedure:

For Experiment I, the originals of the series consisted of accurate drawings of familiar animals, the outlines of which surrounded a number of stars, so that the whole figure was designed to represent a constellation sign. For Experiment II the drawings were simple, ambiguous geometrical forms. Each drawing was presented in different settings so that the comparative effect of two verbal titles and of no title could be observed upon the reproductions made by the subjects, who were all of University education of various academic backgrounds and of both sexes. The subject was told "I am going to show you a drawing on this card. I want you to look at it for 15 (10) seconds and then reproduce on this card what you saw." (Procedure normally used with the Method of Serial Reproduction.)

Conclusions:

On the whole the results give ample confirmation to Bartlett's suggestions as to the function the name or title may play as a setting for the assimilation of material, whether verbal or pictorial. The effect of the verbal setting is found to vary according to the structural relevance of the setting, to the figural material either impeding or aiding an adequate recall. Individual differences in ability to apprehend the essential meaning of a verbal text are important, the constructive quality of recall depending upon the attitude and probably upon the intelligence level of the subjects. While the conventionalisation of the material may take place progressively, Gestalt tendencies towards greater simplicity and symmetry are also observed, both within the title framework and where there is no verbal setting.

3.A.21 *La lecture du visuel.*
(The Visual Lecture.)
HASLE, J.
Courrier de la Recherche Pédagogique No. 10, Septembre 1959. (F)

Purpose:

To find out if it is necessary to "teach" how to read visual elements as one teaches the reading of a book.

Procedure:

Ninety-six boys and 104 girls, aged ten to fourteen years, took part in this investigation. There were different types of picture (drawings, photographs, graphs, etc.) and each required a different type of "reading". Seven photographs were used. The picture was shown for five minutes, the child had five more minutes to write a description of what he had seen. The pictures were in black-and-white and no title was given. The seven photographs were divided according to their difficulty. The children were divided into two groups. The first group saw the pictures from the simplest to the most complicated, the second group saw them in the opposite order. No difference was found between the two groups in detail of description. An analysis of the content of the picture was made, noting the elements mentioned.

The example studied was a picture showing an African market.

Conclusions:

All the children "read" the picture in the same way. An experience on "learning" to read pictures had been started and very rapid progress was noted.

Pictures provide a stimulus, the child makes sentences, he organises. This exercise is perhaps more profitable than the traditional essay; it allows the child to concentrate on the language; later on he will really be able to use his imagination.

3.A.29 *Pictorial Methods.*
LANER, S.; SELL, R. E.
Occupational Psychology, Vol. XXIV, 1960, pp. 153-167. (U.K.)

Purpose:

To determine whether or not safety posters can make an effective contribution to accident prevention, effectiveness being defined and measured by the extent to which relatively unsafe behaviour could be converted into safe behaviour. Three safety posters were used concerned with hooking back slings.

Procedure:

Including the follow-up, the whole experiment took twenty weeks; five pre-experimental, six experimental, lapse of seven weeks, two weeks follow-up. The work was carried out in seven steelworks. In three of these, the three selected posters were displayed simultaneously, in three the posters went up consecutively at fortnightly intervals and the remaining steelworks served as a control. A count was taken twice daily of the percentage of slings correctly hooked back. The fact that the experiment was going on was kept from all personnel except those directly concerned with the counting.

Conclusions:

Safety posters can be made effective. The percentage of operations conforming with safety requirements averaged over the six weeks of the display of the posters, rose in thirteen out of eighteen shops (six steel works); in seven of these thirteen shops the increase was more than 20%. Posters are more effective if the message is closely related to the target population. Two alternative mechanisms are mentioned:

(i) posters are effective when they act as perpetual reminders,

(ii) they are effective because their initial impact reinforces correct working habits to the point where they become self-maintaining. Finally the experiment tended to confirm that recall and preference are not very reliable guides to the effect posters have on actual performance.

3.A.30 *An Experimental Study of Pictorial Methods of Instruction.*
LANER, S.
Thesis for Ph.D. degree, University of Reading, 1956. (U.K.)

Purpose:

To study the extent to which pictorial material can replace conventional media largely relying on symbols, and to what extent pictures should faithfully reproduce dimensions of reality.

Procedure:

Two of the experiments are reported in earlier papers published in the Quarterly Journal of Experimental Psychology, Vol. VI, Part 3, August 1954, and the British Journal of Psychology, Vol. XLVI, Part 4, November 1955. The third experiment consists of the transformation of a sheet of paper by a series of folds into a so-called "barge". Sixty R.A.F. men in their late teens and early twenties were the subjects. Half were given instruction by a film, and half by a series of still pictures. The main variables investigated were visual detail and commentary; in addition, participation and practice and repeated showings were studied. The results were scored by reference to eighteen sub-operations, analysed as to total scores and longitudinal scores.

Conclusions:

Visual material is not necessarily more intelligible, nor is its re-evocation more accurate or dependable than is that of conventional media. The limitations of visual displays cannot be overcome by increasing fidelity of presentation of detail. The intelligibility appears to be largely determined by the adequacy of the accompanying verbal exposition.

3.A.31 *Recherche sur l'utilisation du document image en géographie. (Research on the Use of Illustrations in Geography.)*
LEFÈVRE, L.
Courrier de la Recherche Pédagogique, avril 1961, pp. 40-63. (F)

Purpose:

To investigate the benefit which a child can get from the observation of illustrations. How can an active-inductive method which proceeds from illustrations help him?

Procedure:

370 boys and girls, aged from nine to fourteen, in seventeen classes (CM1, CK2, FE and sixth form), took part in this experiment.

CM1 and CM2 saw six illustrations including one diagram, FE and sixth form saw twelve illustrations including one diagram. The children were asked a certain number of questions about the illustrations.

The pictures represented different aspects of the river Seine, its source, the Seine in Paris, the Seine at Le Havre, etc.

In all 38,878 questions were answered. They were analysed in comparative and statistical charts. Four types of question were asked —spontaneous observation, guided and comparative description, exercises comparing two documents, exercises in reasoned and detailed observation.

Conclusions:

The children enjoyed this work on illustrations, but criticised some of the ones used. Most of the ideas about the river were understood, but 30% to 40% of the children did not succeed and their ideas on dams and locks were rather vague. Spontaneous observation is not general among children at this age. The comparisons are descriptive and not analytical. It appears that a combination of geography and the French (mother tongue) lessons would be helpful.

The illustrations should be well chosen and have true pedagogical value. There is a danger of subjective and unreal descriptions from pictures. Mythical ideas were found concerning springs, etc. The questions asking for a comparison between pictures showed that observation must be active, that it is not sufficient to show pictures but that the children must be taught how to look at them, and how to express what they see. Pictures can also be used in evaluating what the children know.

3.A.32 *Research in Picture Study: The Reaction of Grammar School Pupils to Geographical Pictures (Interim Report).*
LONG, M.
Geography, Vol. XLVI, 1961, pp. 322-337. (U.K.)

Purpose:

The purpose of this investigation was to obtain some facts about the ability of secondary school children to recognise features shown in geographical photographs.

Procedure:

In successive periods each pupil in the class was given a large clear print picture of a simple settlement pattern in a maritime environment—(1) a low air oblique and (2) a ground-level landscape.

The children (1) were given twenty minutes to "write as much as you can about the picture", (2) with the aid of a large line drawing were required to answer questions designed to test observation and recognition and (3) were required to record on the line drawing the presentation of specific phenomena.

Conclusions:

For teaching purposes we should be cautious at present in our assumptions of what children observe. It is apparent that children do not see everything in a picture, and their selection is not necessarily that of a geographer. Given correct guidance there is a marked improvement in their performance. Analysis of this and other material collected is proceeding.

3.A.45 *A Preliminary Enquiry into Engineering Drawing Comprehension.*
SPENCER, J.
Occupational Psychology, Vol. XXXVII, No. 3, 1963, pp. 181-195. (U.K.)

Purpose:

To find out whether experienced users of technical drawings differ from one another in what they consider to be desirable ways of presenting drawings, as preliminary studies to experimental findings about comprehension of such drawings.

Procedure:

Each of seventeen engineering designers was given a simple cup-shaped cast-iron component which was part of a small hydraulic valve and he was asked to prepare freehand sketches of it, exactly as he would prefer to see an accurate engineering drawing produced to permit the part to be manufactured. The assessment of the sketches was considered in two parts; first the general layouts were compared to seek common agreement and secondly an assessment was attempted of the extent to which drawings were completed enough for the part to be manufactured.

Conclusions:

There is little uniformity of engineering drawing practice and a sizeable amount of information is omitted in the first preparation of a drawing. Normal codes of inference may be responsible for this, which, though satisfactory within the firm that adopts them, can lead to difficulties when readers with dissimilar codes try to read such drawings.

3.A.47 *Learning from Graphical Material.*
VERNON, M. D.
British Journal of Psychology, Vol. XXXVI, Part 3, 1946, pp. 145-158. (U.K.)

Purpose:

To test the ability of adults, especially those who have not had a wide general education, to understand and acquire information about problems of general social importance from charts and diagrams.

Procedure:

Two sets of numerical data, the first on vital statistics and the second taken from the Government White Paper on Statistics relating to the War Effort, were presented graphically to 231 students, airmen and soldiers who were required to recall the information given either in their own words or by answers to questions. In Method I a graph or chart was shown for two minutes and the candidates reported verbally. The answers were graded A, B, C, D according to degree of understanding. In Method 2 the candidates were asked questions designed to test accuracy of recall, the answers scored numerically. The other questions designed to test a more general grasp of the problem were scored A, B, C, D also.

Conclusions:

The understanding and remembering of these data appears to depend on ability to interpret graphic material, understand and use language, generalise from particular, and to think relevantly without being swayed by preconceived ideas. In visual methods of presentation the graph and the chart are no more immediately representative and no less symbolic of the information they are intended to convey than are verbal and mathematical statements.

3.A.48 *The Visual Presentation of Factual Data.*
VERNON, M. D.
British Journal of Educational Psychology, Vol. XX, Part 3, 1950, pp. 174-185. (U.K.)

Purpose:

To discover how far grammar school pupils found difficulty in understanding and remembering numerical data presented in graphical form. An extension of an enquiry with adult subjects reported in the British Journal of Psychology, 1946, Vol. XXXVI, pp. 145-158.

Procedure:

Experiment A. Material was presented for two minutes to twenty-four grammar school boys and girls aged 15-18 years. The material consisted of data relating to vital statistics, in three series of five presentations each. Each was prepared in three forms: a pictorial chart or pictogram, a graph and a table of figures. The presentations were made individually to each subject for a period of two minutes after which he answered three or four questions orally. After each series he answered two or three general questions about the series.

Conclusions:

As in the previous experiment, the conclusion is reached that the essential factor in understanding and remembering such material is the production of a continuous and coherent argument connecting together the isolated data. No definite statements can be made about the best way of presenting such an argument. Nor does the evidence indicate the value of diagrams or of tabular material. When a written text is studied as well as the graphical presentations the same difficulties appear. The main factor determining accuracy of remembering particular presentations is in intrinsic clarity and comprehensibility of the content of the presentation.

3.A.49 *Learning and Understanding.*

VERNON, M. D.

Quarterly Journal of Experimental Psychology, Vol. III, 1951, pp. 19-23 (U.K.)

Purpose:

To conclude investigations of ability to understand information presented graphically, it was decided to discover if information was derived more readily from study of a brief written text illustrated by graphs or from a brief written text without such illustration.

Procedure:

The material, consisting of two short written texts, I and II, was presented to two groups of eleven grammar school girls aged 16-18. Group I read Text I with graphs and Text II without graphs. Group II had Text I without graphs and Text II with graphs. The subjects were tested orally, individually after ten minutes of study. The recalled material was scored in two ways; one mark was given for each individual item and then there were certain general statements on groups of items, the omission of which showed that some essential part of the argument had not been fully grasped.

Conclusions:

In general the recalls of material from the written text alone were better arranged, smoother and more coherent than those of the text with graphs. In certain circumstances this tendency of the graphs to break up the continuity of the written text might serve a useful purpose of preventing the slavish acceptance and copying of the statements of the text. But this effect would be valuable only if the subject were able first to assimilate the details of the graphs, secondly to check the written statements against them and thirdly to integrate the whole into a coherent logical argument. It did not seem that the subjects of this experiment at least in the time at their disposal were able to perform this task.

3.A.50 *The Use and Value of Graphical Methods of presenting Quantitative Data.*

VERNON, M. D.

Occupational Psychology, Vol. XXVI, 1952, pp. 22-34 and pp. 96-100. (U.K.)

Purpose:

These two articles summarise the findings of an enquiry carried on over a number of years with different types of people, into the understanding and remembering of information presented in graphical form. The enquiry was concerned with (i) graphical material presented along with no more than brief descriptions or headings; (ii) graphical material used as illustration to a continuous written text. The data presented related to vital statistics on population, disease and mortality, statistics on manpower, production and consumption during the 1939 war. (Details of these experiments are reported in other entries.)

Conclusions:

Comparatively intelligent and well-educated people can derive some factual information from graphs and charts presented without written text, but with less well-educated, intelligent and mature individuals or with complex data, understanding and remembering may be rather poor. A short descriptive heading may be of some assistance but will not really clear up difficulties inherent in the data. No all-round advantage is gained by using charts instead of graphs. Even when isolated and specific factual data are understood and learnt from graphical presentations, many people will find it difficult to assimilate this information to any general body of knowledge. A continuous verbal argument must be supplied in order to give the graphical material a general setting which will make it meaningful. Furthermore, a written argument will not be made easier to understand and remember by presenting factual data graphically except in certain special circumstances. The readers must have sufficient intelligence and general education to be able to handle graphical material efficiently. Graphs and charts are valuable only in so far as they can be perceived to corroborate or extend the facts upon which the argument of the text is based. And even then they may have the effect of laying so much stress on factual detail that the general argument is forgotten. In no case can one assume that they will provide a short cut to the understanding and remembering of something which would otherwise be beyond the comprehension of the reader.

3.A.51 *The Value of Pictorial Illustration.*

VERNON, M. D.

British Journal of Educational Psychology, Vol. XXIII, 1953, pp. 180-187. (U.K.)

Purpose:

To investigate the effect of accompanying pictorial illustrations upon the remembering of verbal texts. Two questions must be answered. Firstly, do pictures help or hinder the acquisition of knowledge from the text? Secondly, do they exercise interest to any appreciable extent?

Procedure:

Two series of experiments were carried out; the first with thirty-eight boys and girls, aged 16-18 years, in a grammar school, the second with twenty-four boys and girls, aged 15-16 years, from a selective school. In Series One, two versions of two short articles, A and B, were prepared. Version 1 (A1 and B1) were written in popular style and illustrated with striking photographs. Version 2 (A2 and B2) were written more objectively and scientifically and were accompanied by graphs showing data on disease, mortality, etc. Half the subjects were given A1 and B1 to read and the other half A2 and B2 to read. After ten minutes the subjects were questioned orally on recall and on interest.

Their reports were scored by the number of major points and by the number of details remembered. Series Two was carried out in order to compare the amount remembered with and without pictorial illustration. A3 and B3 were identical with A1 and B1 but A4 and B4 had no illustrations. The conditions and scoring were the same as in Series One.

Conclusions:

The results substantiate those obtained in earlier experiments. The pictures had little effect in helping the reader to gain a real understanding of what he read; pictures are still less able than are graphs to demonstrate relations and explanations, although they may help the reader to remember particular parts. In several cases the pictures produced a considerable emotional impact, such as might affect the attitudes of subjects to the social problems described in the text; but these attitudes would not necessarily lead to reasonable suggestions for courses of action.

3.A.52 *The Instruction of Children by Pictorial Illustration.*

VERNON, M. D.

British Journal of Educational Psychology, Vol. XXIV, 1954, pp. 171-179. (U.K.)

Purpose:

To discover if the pictures in a book can add something to the child's knowledge and understanding of an instructive book.

Procedure:

Two studies were carried out with different tests on the effect of pictures on learning by children aged eleven and twelve.

Conclusion:

The author says the results showed no decisive evidence that the pictorial illustrations produced anything more than a very limited addition to the information and instruction given by the written test. She presented the results in the hope that they might be of some value as an example of precise experiment and as indicating how difficult it is to obtain any evidence under controlled experimental conditions of the value of such visual aids.

3.A.53 *The Value of Graphical Material.*
VERNON, M. D.
Medical and Biological Illustration, Vol. IV, No. 4, 1954, pp. 203-212. (U.K.)

Purpose:

This article puts together the findings of four series of experiments reported by Dr. Vernon in:
British Journal of Psychology, p. 36, 1946;
British Journal of Educational Psychology, p. 20, 1950;
Quarterly Journal of Experimental Psychology, p. 3, 1951;
British Journal of Educational Psychology, p. 23, 1953.
(The four papers are entered as separate items in this index.)

Conclusions:

Illustration of a text whether by pictures or by graphically presented quantitative data does not of itself increase the degree of understanding and the accuracy of recall. Particular items may be stressed by suitable illustrations but the general grasp of the main theme of the argument is not improved. The grasp is determined by the intelligence and amount of education of the reader. In certain cases, graphical presentation may actually confuse the reader if he has not learnt to understand this type of presentation with facility. Pupils need to be taught to check verbal statements of a text by means of the specific data presented graphically and to assess the logical consistency of the statements within the general argument of the text.

SECTION 4

MUSEUMS

4.A.2 ***A Study of Children's Interests and Comprehension at a Science Museum.***

BROOKS, J. A. M.

British Journal of Psychology, Vol. XLVII, 1956, pp. 175-182. (U.K.)

Purpose:

An enquiry into the types and numbers of children who visit the Children's Gallery of the Science Museum, South Kensington, London, S.W.7, and the extent to which they comprehend what they have seen.

Procedure:

During the year 1955 the number of persons entering the Children's Gallery was counted during six quarter-hour periods on two days, falling under the headings: Summer term weekdays, Autumn term weekdays, Summer holidays, Christmas holidays, Bank holidays, a "fine" and a "wet" Saturday, Sunday afternoon. Records were made of the times spent by certain children (thirty-five boys and fifteen girls) who came unaccompanied by adults, at each exhibit. An investigator buttonholed sixty-eight boys and thirty-two girls as they were leaving and questioned them orally on age, reason for attendance, and comprehension of certain exhibits.

Conclusions:

Many 11-14-year-old boys are sufficiently curious about the apparatus of physical science to justify a Gallery such as this one. It should not be tied to any syllabus but should appeal to children's sense of wonder. They usually want to understand even if they lack the reading capacity, etc., to make full use of the opportunities offered. Working models have the greatest pull, though some exhibits closely related to daily life interests are high in popularity. The planning of a museum should be intimately bound up with child psychology.

SECTION 5

PERCEPTION

5.A.3 ***Y a-t-il une relation entre la capacité d'appréhension visuelle et le mouvement des yeux?***
(Is there a Relation between the Capacity for Visual Perception and the Movement of the Eyes?)

BATTRO, A. M. ; FRAISSE, P.

l'Année Psychologique, Vol. 61, 1961, 2, pp. 313-324. (F)

Purpose:

To understand the development of awareness in function with the ocular movements.

Procedure:

Two experiments were made on different subjects. The first experiment was to study the ocular movements while the length of exposure was less than 2/100ths of a second. The second was to verify the results obtained by having an exposure of up to 10/100ths of a second. Cards of twelve letters, twelve numbers and twelve syllables were used, having no order or meaning; these were presented by tachistoscope.

Conclusions:

The results of the two experiments show that the ability to perceive grows rapidly with short lengths of exposure, inferior to 20 or 30/100ths of a second, a length of time which does not allow for ocular movements, or at the most, a short movement. The threshold for the ability to perceive is found at about 2 to 3/100ths of a second; for longer periods of time the greatest capacity for perception probably corresponds to a memory mechanism.
This experiment shows the relative independence of the field perception as related to ocular activity.

5.A.10 *L'évolution de la capacité d'appréhension en fonction du temps d'exposition.*
(Development of the Capacity for Visual Perception as a Function of the Time of Exposure.)
FRAISSE, P. ; BATTRO, A. M.
l'Année Psychologique, 1960, pp. 295-307. (F)

Purpose:

To measure the capacity to understand letters, numbers of two numerals, and three-letter nonsense syllables, following two methods and comparing results.

Procedure:

Two experiments were made with the students. The first studied the field of awareness by applying, for each length of exposure and each type of material, the method of the limits in growth differential. The threshold corresponded to the cards containing the most information where all the stimuli were perceived correctly. The second experiment studied the variable of the field of awareness in relation to the length of time exposure when the quantity to be perceived remained constant and above the capacity of the subject.

Conclusions:

The results showed that the growth of the capacity of awareness increases with the length of exposure of the material, and that the same capacity of awareness varied with the kind of material used. The more complex the material the weaker the capacity for awareness and this is true of all lengths of exposure. The comparison of the two methods used confirms the sensitivity of measures of perception to all variations.

5.A.16 *An Examination and Analysis of Individual Differences in Visual Perception in some Junior School Children.*
HARRISON, C.
Thesis for M.Ed. degree, University of Leicester, 1962. (U.K.)

Purpose:

This work consists mainly of the record of an enquiry carried out at the Lutterworth Sherrier Junior School between 1956-1960.

Procedure:

In 1952 the original Primary School was divided into two separate establishments. By 1956 the Headmistress of the Junior School was becoming concerned by the apparent invalidity of recommendations on children's abilities given by the Head of the new Infant School. This was one important factor which stimulated interest in this particular enquiry.

The first chapter describes how the Junior School was regarded as being transitional between two fundamental fields of teaching methods; the Infant School being engaged in providing a wide variety of perceptual experience with a high visual content, and the Grammar School involved in the manipulation of abstract concepts with a strong aural emphasis in its teaching methods. The tests which were carried out had two main aims:

(*a*) to expose individual differences in the ability of employing the world of visual experience in a number of children making this transition;

(*b*) to examine and analyse some of the effects of these differences on the child's progress through the Junior School stage.

To this end four pieces of experimental work were carried out. Each is preceded by a description of its aims, details of its construction and the procedure used in its administration. Each experiment is followed by a brief analysis.

Conclusions:

After the last experiment there follows a more detailed and general examination of all the experimental work. The thesis concludes with a chapter in which an attempt is made to view the implications of any indications that have emerged in the light of recent trends in Junior School Education.

5.A.19 *Observer Error: Its bearing on Teaching.*

JOHNSON, M. L.

The Lancet, August 1955, pp. 422-424. (U.K.)

Purpose:

To give some examples of how the same retinal image can be variously interpreted and to attempt to relate this to observation in medicine.

Procedure:

Examples are given of experiments involving the presence or absence of a sign, analogies with observation in medicine are cited, and the complexity of observation is discussed in relation to training.

Conclusion:

Improvement in skill of observation might be facilitated if groups of observers discuss their interpretations of the same material, attempting to describe the features they use in coming to their decision and testing their accuracy against other findings.

5.A.22 *The Perception of Shape as a Function of Inclination.*

JOYNSON, R. B.; NEWSON, L. J.

British Journal of Psychology, Vol. LIII, Part 1, 1962, pp. 1-15. (U.K.)

Purpose:

A descriptive study of the various judgments of shape which are spontaneously made when the inclination of an object is varied. The full range of inclinations is examined from 0° to 80°.

Procedure:

One hundred undergraduates and graduated members of the University were examined, twenty at each of five angles of inclination. The standard object was an isosceles triangle of red paper, mounted centrally on a white card, which was attached to a camera tripod so that the angle of inclination could be varied in the vertical plane. The subjects were asked to compare this with a series of twenty-six triangles of varying height.

Conclusions:

Two main judgments are possible: judgments of real shape (R) and judgments which show a compromise between true and retinal shape (N). Some subjects are spontaneously aware of both possibilities and some of (R) possibility only. Judgments of real shape involve a skill.

5.A.25 *The Effect of an After-Coming Random Pattern on the Perception of Brief Visual Stimuli.*

KINSBOURNE, M.; WARRINGTON, E. K.

Quarterly Journal of Experimental Psychology, Vol. XIV, Part 4, 1962, pp. 223-234. (U.K.)

Purpose:

To resolve the question whether masking a visual stimulus by an after-coming non-informational stimulus can occur in a situation uncomplicated by differences in latency and to define the limits of the occurrence of the phenomenon.

Procedure:

A Dodge-type tachistoscope was used in the experiments performed on six normal subjects. The stimulus letters used were capitals used singly in black on white card. The non-informational stimulus was a random pattern. The effect of the after-coming pattern was systematically explored on single letters, straight lines, groups of two or three letters.

Conclusions:

The results show that under the condition of the experiment it was possible consistently to mask a test stimulus by means of an after-coming random pattern up to a critical exposure duration. The threshold exposure duration at which information stimulus can be differentiated from a random pattern background is higher than that at which it can be seen against a homogeneous light background, and the length of this period must relate to some fundamental attribute of the neural system subserving visual perception.

5.A.26 *Further Studies on the Masking of Brief Visual Stimuli by a Random Pattern.*

KINSBOURNE, M.; WARRINGTON, E. K.

Quarterly Journal of Experimental Psychology, Vol. XIV, Part 4, 1962, pp. 235-245. (U.K.)

Purpose:

To resolve the question whether the masking effect can be produced when random pattern precedes the test stimulus and whether it represents interaction at a cerebral or at a retinal level.

Procedure:

A Dodge-type tachistoscope was used in experiments on seven normal subjects. The stimulus letters were black on white card and the random pattern was that used in an earlier experiment. The effect of the preceding pattern was systematically explored. A similar experiment was performed to determine the effect of dichopic presentation.

Conclusions:

The masking effect occurs in the same way when test stimulus and random pattern are presented separately, one to each eye under binocular conditions both when the random pattern precedes and when it succeeds the test stimulus. Evidently the effect does not depend upon interaction at the retinal level. The mechanism of masking must therefore be considered in the light of knowledge of central perceptual processes.

5.A.33 *Perception d'images fixes dans différentes conditions.*
(Perception of Still Pictures under Different Conditions.)

LEBOUTET, L.

Bulletin de recherche du Centre Audio-Visuel, R.6, 1955, 11 pp. (F)

Purpose:

To define more accurately the results obtained in 1953 on the perception of photographs and of projected slides.

Procedure:

In these experiments additional variables were introduced. Three situations were studied: direct projection on to a screen; observation in a black box; observation in normal vision.

There were nine photographs of familiar scenes. Nine groups of three pupils each were formed so that each child should try each situation. The pupils were eleven to twelve years with normal eyesight.

Analysis of variance between the different factors studied was made (order of presentation, situation, groups of pictures) and correlated with the different types of presentation of the pictures (direct projection, observation in a black box, observation in normal vision). The comparisons were made through the number of details found for each picture and each situation.

Conclusions:

None of the factors studied seemed to have an influence on the results and no significant differences were found.

These results were different from those of the previous experiment. The present experiment used: selected children with normal eyesight; identical arrangements in the two situations; adjusted light in the two situations.

Fatigue was noted to have an effect. The number of details noted diminished from the beginning to the end of the experiment. This effect was shown by the Alexander method.

There was a correlation between the number of details noted and a vocabulary test. The correlation found was $r = 54$ which is significant at $P = \cdot 01$.

The general conclusions are:

(*a*) there is no difference between projection and direct vision if the light is the same;

(*b*) fatigue is a factor which should be taken into account in the classroom.

5.A.37 *The Learning Effects of Pictures.*
MAGNE, O. E. F.; PARKNÄS, L.
Skola och Samhälle, 1960, pp. 55-71. (S)

Purpose:

To test the following hypotheses:

(i) The method of testing defines what part of retention we measure.

(ii) A method of testing, adequate to the mode of presenting the information, covers a larger part of the total retention than a method that is inadequate to this mode.

Procedure—Experiment I:

The learning material (a set of colour slides) was projected on to a screen in the classroom. The subjects had to study each slide for three minutes. Each slide represented four plants, and of every combination of four plants there were two versions: one consisting of a coloured picture of the four plants and the other of a verbal description. The test consisted of judging whether, in a second slide, the petals, leaves or roots of the plants had been changed. There were two versions also of the test pictures: a "pictorial" and a verbal representation.

If we let the letter P stand for pictorial and W for verbal representation, and if the first letter represents the type of information and the second the type of test, we get the following four experimental conditions: P-P, W-W, P-W and W-P. The subjects were 228 boys and girls aged thirteen. Each class was divided into two groups so that the average marks for science should be the same. Each group was shown a slide with information and immediately afterwards the corresponding test slide. Retention was determined by assigning plus scores for correct answers.

Conclusions:

The results support the hypothesis that the method of testing influences the definition of retention. If it is intended to compare pictorial and verbal knowledge, then retention should be measured by both pictorial and verbal tests.

At the same time the experiment verified that, in the case studied by us, pictorial learning was superior to verbal learning.

Procedure—Experiment II:

The learning material in Experiment I was used in an experiment with somewhat different design, where the eighty-one subjects took part in a diploma course in education at the University of Göteborg.

Conclusion:

It was found that the mean retention of the pictorial information was greater than that of the verbal information. What is of the greatest interest is that, even among adults, the means for P-P and W-W are higher than those for P-W and W-P. The sequence of the experimental conditions, in accordance with the size of the means, was the same in Experiments I and II, with the exception of W-P and P-W, but in both cases the difference between them was insignificant.

Procedure—Experiment III:

This experiment was conducted to test our hypotheses in a practical learning situation where the information is presented both verbally and pictorially.

The information consisted of a lesson on Greenland which was given to two groups, the one with and the other without a filmstrip. Each lesson took twenty minutes, testing occurred immediately afterwards and with no time-limit. The test-form contained five verbal questions and five pictorial questions. The subjects were 192 boys and girls aged 11-12.

Conclusions:

No statistically significant difference was observed between the groups, when retention was measured by the verbal test items, but there was a significant difference in retention when measured by the pictorial test items. In this case the group with the filmstrip yielded a higher mean.

Consequently, we are apparently justified in concluding that, in the situation we investigated, teaching with filmstrips yielded a higher degree of combined or total retention than did teaching without filmstrips.

5.A.38 *La perception à l'écran et les techniques audio-visuelles.*
(Perception of Projected Pictures and Audio-Visual Techniques.)
MALANDAIN, C.
UNESCO Seminar, May 1962, Caën. (F)

Purpose:

Evaluation of the difference between perception of a still picture projected on a screen and its direct observation on paper.

Procedure:

In this experiment 105 children aged from 6-10 (four primary school classes) took part. Sixteen pictures arranged on a single sheet of paper were used. They could be "read" as a story from left to right or from top to bottom. The pictures represented the life of a family. The children were asked to say what they saw in the pictures. The children were divided into two groups of which one saw the pictures projected on a screen and the other on a sheet of paper through direct observation.

The children were divided into groups according to their age, their success at school and their results at Goodenough's test. The differences between types of story, accuracy and organisation were studied.

Conclusions:

Children identify the family as a whole better by direct observation than through projection.

Children enumerate and describe more in the projection situation, less interpretation is found here.

Children "read" the pictures from left to right, but in the projection situation they sometimes "read" in a disorderly manner; this does not occur in direct observation.

One cannot transpose illustrations from books on to a screen. The two situations are not equivalent. This experiment attempts to underline limitations of audio-visual techniques, which are very rich but do present problems to children.

5.A.39 *La perception du film fixe chez l'enfant.*
(Children's Perception of Filmstrips.)
MALANDAIN, C.
Centre de Recherche et d'Etude pour la Diffusion du Français (C.R.E.D.I.F.), Paris. (F)

Purpose:

To examine children's reactions to a silent filmstrip. What are the children's difficulties in interpretation?

Procedure:

212 boys and girls betweeen the ages 8-12 years took part. A filmstrip from the "Voix et Images de France" course was used, a course for teaching French to foreigners. The filmstrip contained three simple stories that would interest children.

The children were questioned individually; each child saw only one of the filmstrips; there was no sound commentary. The child saw the whole strip twice and was then told the story; the child saw the story picture by picture and gave a commentary for each picture. Everything the children said was noted. The answers were divided into four categories—correct, incomplete, false synthesis, or absence of synthesis. Answers were also divided into three other categories —enumeration, description, interpretation, and were classified according to accuracy.

Conclusions:

For children under ten years enumeration and description were most frequent. Correct synthesis was not very frequent and the standard of accuracy was low. A complete audio-visual course for teaching languages to children could only be used from 10-11 years onwards. The text must follow a grammatical progression but must also allow for comprehension and simple graphic transcription. The pictures must be serious and precise.

The different elements must be organised according to the rules of perception. The picture must only contain elements essential to comprehension.

The character who speaks, the object that is being spoken about, must occupy first place.

The order of succession of the pictures is very important. Two successive pictures must be at once alike and different; an equilibrium must be found. There should only be one new element in each picture and the progression must be visual. The best way to present a filmstrip at this age is probably to divide each story into two or three stages. At the beginning of each stage there would be one picture showing the general meaning of the stage, then detailed pictures for each sentence should be presented.

5.A.42 *Hörerlebnis und akustische Anschauung.*
(Listening and Auditory Attention.)
SCHNEIDER, W.
Film Bild Ton, IV, 1954, München, 5 pp. (G)

Purpose:

The research registers the behaviour and understanding of listening-groups.

Procedure:

3,200 children and young people (8-18 years) took part in this research which was based on experiments in using broadcasts in classes of various ages. The results were registered by questionnaires and tests.

In relation to the Wiggle-Test the author develops his own "listening graph" and attention diagram.

Three transmissions were recorded, minute by minute:

1. "Der 8 Mai 1945";
2. "Werkstatt contra Fliegband";
3. "Der Schinderhannes".

Conclusions:

The interest of pupils from 8-10 years lasts for only about fifteen minutes, then their interest, on an average, breaks down. Pupils from 8-10 years understand the feature only if there are not more than two to four actors. Between 10-12 years, the pupils' attention lasts for twenty minutes. At this age, pupils understand the feature if there are four to five actors.

12-15 years: young people of this age can follow a feature for twenty-five minutes; five to seven actors in the feature are distinguished.

Young people from 15-18 years are interested in the feature for more than thirty minutes. Without difficulties, seven to ten actors in the feature can be distinguished.

5.A.43 *Psychologie des Filmerlebens in Kindheit und Jugend.*
(Psychology of Film Viewing in Childhood and Youth.)
STÜCKRATH, F.; SCHOTTMAYER, C.
Schropp'scher Lehrmittel-Verlag, Hamburg, 1955, 172 pp. (G)

Purpose:

To register the effectiveness of films.

Procedure:

1,260 children and young people from 4-18 years took part in this experiment. Hamburger Filmtest (a batch of pictures similar to the "Thematic Apperception Test of Murray") was used.

Conclusions:

At the age of six years (the middle stage of childhood) there are no original requirements of the cinema. Sequences are understood by the children if they can become involved in the action.

At twelve years of age (the last stage of childhood) boys and girls develop great activity when seeing films. Because the energies of this age cannot find enough outlets in action, the child finds such outlets in films.

At seventeen years young people have a tendency to develop their "ego", to form their personality. The effectiveness of films at this age depends on a correspondence between the film action and the personal situation.

In the middle stages of childhood (6-8) parents and teachers should guard their children against the bad influences of film (prohibitive film-education). In later childhood "prohibitive film-education" is not successful. Parents and teachers should guide children towards good films. For young people film education should help and advise.

5.A.46 *Binocular Rivalry and Stereoscopic Depth Perception.*
TREISMAN, A.
Quarterly Journal of Experimental Psychology, Vol. XIV, 1962, pp. 23-37.

Purpose:
To investigate stimulus factors causing retinal rivalry or allowing stereoscopic depth perception.

Procedure:
Four experiments were performed on between eight and sixteen subjects to test colour rivalry, intensity differences, stereopsis from colour cues, contrast and binocular perception of brightness.

Conclusions:
Similar colour information can be filtered out from both eyes; stereopsis is not incompatible with rivalry and suppression of one aspect of the stimulus; the strongest cue for perception of stereoscopic depth is intensity difference at the boundaries of the figures. Identity of colour can also act as a cue. Perceived brightness is a compromise between molecular brightness difference and the mean brightness of the figures.

5.A.47 *A Further Study of Visual Perception.*
VERNON, M. D.
Cambridge University Press, 1952, 289 pp. (U.K.)

Purpose:
To show how the results and conclusions obtained from experimental work on perception can be regarded as a lucidating and constant endeavour of the individual to combine a sensitive awareness of the important variations of his environment with a disregard of all minor variations, especially if these should affect the impression of a stable external world and of his own consistent relationship to it.

Procedure:
After discussing the nature of perception, experimental studies are reviewed and discussed in terms of the perpetual process, the determination of form, spatial perception, the constancies, the functions of the framework in psychophysical experiments, the perception of movement, Michotte's studies of some intrinsic phenomena of experience, and the influence of internal and individual factors upon perception.

Conclusions:
The percept does not mirror the exact stimulus conditions of the external world, nor is it completely determined by the sensations passing from the sense organs to the central nervous system. Patterns of visual, tactile, and kinaesthetic sensations are perceived as solid objects having an enduring existence. These perceived objects exert an inclusive influence on their constituent parts, but appear sharply delimited and isolated from one another. And these two qualities of inclusiveness and delimitation appear also in representation of objects, and even in simple shapes, at least to adults. The observer develops schemata into which perceptual situations are fitted by virtue of the "effort after meaning". But a bewildering multiplicity of variations of responses takes place between individuals and for the same individual in only slightly different situations.

5.A.48 *The Development of Perception in Children.*

VERNON, M. D.

Educational Research, Vol. III, No. 1, 1960, pp. 2-11, (published by National Foundation for Educational Research). (U.K.)

Purpose:

To present a synthesis of experimental findings on how perception develops in children.

Conclusions:

Both in vision and in hearing perceptual development is active rather than passive. The child does not rest content with passive reception of the information from the outside world which impinges on his senses. Rather because of his need to find out, to understand, to get what pleases him, he sets out to explore and to investigate for himself; and to induce adults to give him the objects and information which he requires. All the time he uses his powers of reasoning to seek knowledge about how and why and wherefore. At first he can reason only by action—by doing things and discovering what happens. But verbal reasoning develops as an accompaniment to such activities. Perceptual and reasoning abilities improve through natural maturation, but they also require the opportunity for exercise and they require encouragement and help from adults. Children are able to profit from formal teaching in school only when they have reached the necessary stage of maturation and if and when this teaching appeals to their natural instincts.

5.A.51 *Some Investigations of Perception of Movement and Related Depth Phenomena.*

ZAJAC, J. L.

British Journal of Psychology, Vol. LIII, Part 2, 1962, pp. 117-128. (U.K.)

Purpose:

To investigate the perception of real movement.

Procedure:

Special apparatus was designed to study perception of perpendicular movement, with a variety of parameters operating.

Conclusions:

When angle of turn, or speed of rotation or both are gradually increased, other factors remaining constant, observations concerning movement in both monocular and binocular vision varied following fixed sequences for monocular and binocular vision.

The results confirm several of the principal laws of depth perception: (1) Binocular depth perception within the limits of practical convergence is different from monocular depth perception. (2) The so-called empirical factors, such as size, overlay height, do not play any important role in stereoscopic depth perception in the near field of vision. (3) The images in one eye influence in some cases depth perception of the images in the other eye.

SECTION 6

RADIO

6.A.7 ***An Enquiry into the Comprehensibility of "Topic for Tonight".***

BELSON, W. A.

B.B.C. Audience Research Department, Report No. LR/52/1080, 1952, 56 pp. (U.K.)

Purpose:

To find out how well talks in the "Topic for Tonight" series could be understood by the target audience. This programme is a five-minute talk followed by the ten o'clock news on the Light Programme each night, meant for the main body of the population and intended to provide background information on some item of news.

Procedure:

The study consisted of four parts: a maximum intake study, an actual intake study, a survey to establish frequency of listening to the programme and a content analysis of the talks. Groups of 40-45 subjects at a time selected by invitation and treated according to social class A, B, C, were exposed to twenty-six of the talks in the maximum intake study, at Broadcasting House. The same number of people who had listened to the programme at home were asked to come the next evening for the actual intake study. They were tested for interest and recall. The aim was to secure sufficient subjects with this or that characteristic to permit the drawing of conclusions in relation to that characteristic. Great care was taken in the treatment of the results to allow for volunteer bias, to plan the allocation of marks and to account for levels of understanding according to occupational level, educational background, age and intelligence.

Conclusions:

Understanding varies considerably but averages at 28% for the general population. The higher the level of educational background the better the understanding; university graduates (less than 1% of the population) take in 48%, while people leaving school at fifteen can take in only 21%. Similarly the higher the occupational level and the more intelligent, the better the understanding. The younger people are able to take in more than older people.

6.A.13 *De Luidspreker in de School.*
(The Loudspeaker in the Classroom.)
BROUWER, W. M.; MACHLIELSON, H.; POST, P.; SCHEFFER, M. C. J.
Amsterdam, 1954, 130 pp. (H)

Purpose:

To examine the action and effects of educational radio programmes (broadcast by the Netherlands School Radio Foundation) in primary schools and some schools for advanced elementary education.

Procedure:

1. *Time:* The programmes were broadcast in October, November and December 1952 when the research was carried out.
2. *Place:* About fifty schools from all parts of Holland were involved.
3. *Subjects:* About 1,000 schoolchildren from 12-14 years old.
4. *Method:* The school radio programmes consisted of three series; a series of eleven radio lessons on music, received by thirty-seven schools; a series of eleven lessons on civics, received by forty-six schools. Each radio lesson took twenty minutes and occurred during school hours. These lessons were frequently attended by one or two of the research-leaders. They made notes about the attention of the children, talked with the teachers, organised class discussions and sometimes participated in discussions between teachers and children after the broadcast lessons. The teachers filled out a questionnaire after each lesson. This questionnaire asked for the teachers' opinions about the suitability of the lessons, the opinions of the children about the lessons, the response of the children, the nature of the activities which followed the radio broadcast, and so on.

   Sometimes the teacher gave a written examination and sometimes one or more questions were asked by the organising institute. The third series of radio lessons closed with a general written examination. The teachers received some written information about programmes (with suggestions about the preparations and follow-up of the radio lessons). In some schools the children made notes during the broadcasts. After each series of three or four lessons the children received illustrated booklets about the subjects of the lessons.

Measurements in the strict sense were only taken with questions to be answered by the pupils after some of the lessons. Apart from these kinds of measurement the items of the questionnaire were analysed.

Conclusions:

In 1,067 written reports teachers gave their opinions about the usefulness of preparing radio lessons in the classroom, the follow-up after the broadcast lessons, the importance of having directives and a list of reference books. Almost 90% expressed as their opinion that preparation is necessary. About 95% thought that a follow-up after the lessons on history and civics was useful. Only 48% thought that a follow-up in the classroom after the music lessons would be of any use. As to the usefulness of the directives and literature for the teachers there was considerable divergence of opinion. Many teachers think they are necessary or at least useful, others think that they are superfluous. The intellectual, moral and social, aesthetic-emotional and entertainment values of the broadcast lessons are judged in a variety of ways by the teachers. The civics lessons were valued most. As to the effects of the lessons there was no significant difference between classes that spent only a short time on the follow-up of broadcast lessons and classes that spent a longer time on follow-up. This is probably due to the relatively small influence of the radio lessons themselves.

6.A.30 *Fünf Jahre Schulfunk in Hessen.*
(Five Years of School Broadcasting in Hessen.)
FISCHER, E. K.; HAUSMANN, G.; SCHNEIDER, W.
Verlag Josef Knecht, 1951, Frankfurt a.M., 158 pp. (G)

Purpose:

This research registers the effectiveness of school-broadcasting in Hessen.

Procedure:

This experiment was carried out during 1946-1957 in 2,950 schools in Hessen. They employed questionnaires and interviews.

Conclusions:

The transmissions were produced for three age groups:
(*a*) 6-10 years,
(*b*) 10-14 years,
(*c*) 15-20 years.

All other tests (for instance: transmissions especially produced for elementary schools, for grammar schools, for secondary schools) did not succeed.

At all schools tape recorders were a very good help to record broadcast lessons according to the curriculum.

6.A.32 *Schulfunk und Tonband.*
(School Broadcasting and the Tape Recorder.)
FOERSTER, O.
Heering-Verlag, Seebruck/Chiemsee, 1953, 96 pp. (G)

Purpose:

Methodical and didactical possibilities in using tape recordings and school broadcasts, registering the effectiveness of transmitted lessons.

Procedure:

The experiment took place in Berlin during 1950-1953. 100 classes took part; questionnaires, reports by field workers as well as tape recordings and teachers' reports were used.

6.A.36 *A Survey of the Extent to which School Children listen to and appreciate B.B.C. Programmes and its Relationship to their Acquisition of Knowledge.*

GARLAND, G. R.

Thesis for M.A. degree, University of London, 1951. (U.K.)

Purpose:

To explore the three aspects of broadcasting and its impact on children aged 11-16 years: the content of children's listening; their appreciation of radio programmes; and the relationship between the process of listening to certain programmes and the acquisition of knowledge.

Procedure:

Data for Part I were obtained from listening diaries kept by 125 boys and 103 girls for periods of two distinct weeks. In Part II the main criterion of programme appreciation was derived from an appreciation index based on a five point scale with numerical weightings. This is the method used by B.B.C. Audience Research for studying appreciation among adult audiences. In the third part, four radio programmes were taken and short tests of information which might be acquired, were sent without warning about one week after each broadcast. The results were compared with those of similar tests dealing with four events reported in the newspapers. The scores were analysed.

6.A.42 *Der Schulfunk—Geschichte, Wesen und Wirkungen. (School Broadcasting—its History, Nature and Effect.)*

HEINRICHS, H.

Verlag der Pädagogischen Akademie, Aachen, 1956, 105 pp. (G)

Purpose:

This publication investigates the importance of school broadcasting.

Procedure:

The experiment took place in Köln and nearby places in 1954. Fifty-four classes took part and teachers' reports, interviews and questionnaires were used.

Conclusions:

School broadcasting can be an excellent help in education. Radio transmissions are successful only if pupils are stimulated to active follow-up work. Not only does school broadcasting bring material into the classroom it brings action too. Teaching pupils to listen in the right way is one of the best means of succeeding in school broadcasting.

6.A.43 *Die Praxis des Schulfunks.*
(School Broadcasting in Practice.)
HEINRICHS, H.
Verlag Neue Deutsche Schule, Essen, 1958, 165 pp. (G)

Purpose:

Short introduction into the method of educational broadcasting.

Procedure:

This experiment took place in Bonn and Aachen primary schools.

The following took part:
50 pupils (9 years),
50 pupils (about 12 years),
200 pupils (13-15 years).

In this publication the author gives an extensive introduction to methods of using educational broadcasts. His research was based on his own experiments and those of others using broadcasts in classes of various ages. The different classes were tested as a whole (about 30-40 pupils), and then subdivided into groups (about four to six children).

The results were recorded partly by students, partly by the author himself and partly recorded on tapes. The author also describes some experiments of other field workers in relation to his own theory. The author's experiments are described on pages 66-102. In addition to descriptions the author uses children's essays and drawings about school broadcasts and describes them from the educational point of view. The main part of the research is a study of how different age groups perceive and understand individual broadcast programmes.

Within the following groups the author compares programmes broadcast once only with repeated programmes.

(*a*) lower group (6-10 years old),

(*b*) middle group (10-12 years old),

(*c*) upper group (13-16 years old).

Conclusions:

If pupils have been thoroughly trained in listening to school broadcasts, this medium can be of great value in classroom teaching and education. The value of school broadcasts seems to be greatest if the subjects are dealt with in such a way that they overlap with the various school subjects. In principle programmes can be used as an introduction to a subject as well as to study it in greater depth. School broadcasting is particularly suitable for the following subjects: modern language teaching, social studies for primary schools and music.

6.A.46 *Psychologische Untersuchung von Schulfunksendungen durch das Psychologische Institut der Universität Tübingen.*
(Phychological Investigations into School Broadcasting Programmes carried out by the Institute of Psychology, University of Tübingen.)
HÖHN, E.
Schulfunk des Süddeutschen Rundfunks, VIII, 4, 1955, Stuttgart, 8 pp. (G)

Purpose:

The research investigates how far the pupils understand the meaning of words. The second part treats with how far pupils of different ages remember the sense and details of transmissions.

Procedure:

The experiment was carried out in Tübingen and its surroundings. About 230 school children (7-14 years) took part. The research is based on experiments using broadcasts in classes of various ages. Results were recorded by teachers and students of the University. Questionnaires, tape-recorded material and data collected by field workers were also used.

Conclusions:

Children of 6-9 years like dynamic scenes. Subjects connected with adventure and fighting are best remembered. Best results are achieved if children can identify with the "hero" of the piece. If identification is present 50% more facts are remembered.

10-12 years: identification is also necessary at this age, and if it is present 75% more details are remembered.

13-14 years: 48% more details are remembered if the children can identify with the hero of the feature.

It was also found in this research that better results are achieved if pupils discuss a feature after it has been broadcast.

The first group discussed the feature; ten days later only 10% had been forgotten.

The control group had no discussion after the broadcast; ten days later 30% had been forgotten.

6.A.62 *Teaching by Radio and Television: a Comparative Study.*

MALMQUIST, E.
National School for Educational Research, Linköping, Sweden. (S)

Purpose:

To study the efficiency of learning when teaching by radio and television in comparison with teaching by conventional methods in the classroom.

Procedure:

This experiment took place in Linköping, Sweden. 619 pupils in grades V-VII in the elementary school (307 boys and 312 girls) took part.

Objective tests were given to measure the intelligence of the pupils and the learning retention of the experimental teaching periods. The attitudes of the pupils and of the teachers to teaching by radio and television were measured by rating scales. The relationship between the results of intelligence tests and achievement tests for different groups of pupils was calculated by using correlation-techniques.

Conclusions:

Classes taught directly by teachers in the classroom attained somewhat better results in the achievement tests given immediately after the teaching periods than the "radio-classes" and the "television-classes". The mean differences were not significant in all grades,

however. At a re-testing two months later it proved that "television pupils" had forgotten less of the material they had been taught than the pupils of the other groups. The mean differences in favour of the "television-classes" at this testing occasion were not significant for all groups tested. The teachers as well as the pupils participating in the study in general expressed more positive opinions about teaching by television than about teaching by radio.

6.A.63 *Radio Preferences of Adolescents and Children.*
MCKELLER, P. ; HARRIS, R.
British Journal of Educational Psychology, Vol. XXII, 1952, pp. 101-113. (U.K.)

Purpose:

To study the attitudes and behaviour of children and adolescents in relation to radio.

Procedure:

After a series of intensive preliminary studies on small groups, a questionnaire was prepared and issued through the head teachers of fifty-six schools in Fife and in Surrey, to 6,000 boys and girls of age groups 8-14 years. The detailed study was then carried out on a randomised sample of 1,400 from the fifty-two schools.

Conclusions:

The strongest preferences were for broadcasts of the weekly humorous serial and light music type. Least preferred and most actively disliked were serious talks, classical music, historical and factual programmes. External factors such as serials in "Comics" can affect the popularity of radio programmes.

6.A.68 *Sur l'ambiguité des effets de prestige.*
(The Ambiguity of Prestige Effects.)
OLERON, P.
Cahiers d'études de radio-télévision, 1959, 24, pp. 388-392. (F)

Purpose:

This research aims at showing:

(*a*) that the influence of a programme is greater when the speaker is well known ;

(*b*) that the degree of criticism is in direct relationship with the prestige of the broadcaster.

Procedure:

The experiment took place in the Institute de Psychologie de Paris. 268 Psychology students participated in the experiment. They were divided into two groups, 133 in the first and 135 in the second group. A text, on "literature and the radio" was used. The first group was told that the text was written by a well-known author. The other group was told that the text was part of an essay written by a High School student and read by a radio actor. After listening to the text, the subjects were asked to give their opinions on the following points:

1. the style of the author,
2. the standard of reasoning,
3. the literary knowledge of the author,
4. the amount of thought given to the problem,
5. the skill with which the text was presented.

Each student had to grade his answer on a seven-point scale.

Conclusions:

(*a*) The person with prestige and the high school student were judged according to what was expected from each.

(*b*) As far as the style and thought were concerned there was a significant difference in favour of the High School student.

(*c*) As for the presentation, the prestige effect plays a part: the text of the High School student which was supposed to be read by a radio actor, i.e. a specialist, was rated higher than the text written by a well-known author.

(*d*) The two authors were rated almost identically as far as their literary knowledge was concerned.

When comparison elements are not specifically given, implicit frames of reference are used. One of these is the person to whom the work is attributed. Pompous, awkward presentation must be avoided.

6.A.69 ***Etude sur l'efficacité de l'écoute à la radio.***
(Study of the Effectiveness of Listening to Radio.)

OLERON, G.

Cahiers d'études de radio-télévision, 1954, I, pp. 39-75. (F)

Purpose:

This research studies the problem of the imparting of knowledge. It aims to discover what conditions favour attentive listening; to isolate those factors which seem to play a part in creating attention. The experiment took place at the Laboratory of Psychology of the Study Centre for Radio-Television. Five groups listened to two texts.

(*a*) *Attentive listening situation.*

After a short introduction of classical music the listeners were presented with the first text without prior preparation. The answer note-books were distributed after the first text and the subjects wrote down what they remembered. There was no time limit. Inside the note-books there was a blank page which was to be turned over when the signal was given by the tester.

(*b*) *Inattentive listening situation.*

When all the subjects had finished they turned the blank page and found a questionnaire to answer. As they were answering the questionnaire music was broadcast from a loudspeaker and the instructor read out two texts. At the end of the texts, the listeners had to write down all they remembered of it in their note-books.

(*c*) *A Memory Test.*

This followed the last test after a few minutes of rest.

Conclusions:

The programmes should be short or certain elements are forgotten after the first four minutes.

Considerations of a more general nature are not remembered but concrete ideas are. Precise elements should be isolated, either vocally by a change in the voice or by brief pauses.

Facts are difficult to remember when placed at the beginning of a sentence. It is necessary either to introduce them inside the body of information to which they are related or to repeat them.

The direct style which calls upon the listener and has him take sides is most helpful to the radio-listener. Variations in intonation and in the intensity of the voice are very necessary aids in breaking up monotony and aiding the memory.

6.A.75 *Erinnerungsvermögen nach Schulfunk- und Tonbandsendungen. (Memory Recall after School Broadcasts.)*

RUPRECHT, H.

Pädagogische Hochschule Heidelberg, privately published, 1955, 48 pp. (G)

Purpose:

This research registers understanding and power of recollection of feature programmes.

Procedure:

584 pupils 6-14 years—in Heidelberg and nearby places—took part in the research in 1951-1955. Two transmissions were recorded in several groups:

1. "Dornroschen";
2. "Der 8 Mai 1945".

"Dornroschen" was transmitted only to lower classes.

"Der 8 Mai 1945" was transmitted only to upper classes.

Both results were correlated. The children had to fill in questionnaires,

(*a*) immediately after the transmission,
(*b*) one week later,
(*c*) four weeks later,
(*d*) twelve weeks later,
(*e*) fifty-two weeks later.

Conclusions:

The children understand the story if it is suitable for their age.

On an average there are very good results of remembering immediately after the transmission.

One week later children have forgotten 25% of the details,
four weeks later children have forgotten 39%,
twelve weeks later children have forgotten 54%,
fifty-two weeks later children have forgotten 70%.

If active work is carried out after the transmission only
5% are forgotten after one week,
14% are forgotten after four weeks,
29% are forgotten after twelve weeks,
41% are forgotten after fifty-two weeks.

It is essential for effective learning to discuss the transmitted lesson and to have follow-up activities.

6.A.85 *An Examination of the Efficiency of Schools Broadcasts.*
SOLUSTRI, A.
Chiaravalle, Ancona, (unpublished). (I)

Purpose:

To examine the educational efficiency of schools broadcasts.

Procedure:

This experiment took place in an elementary school at Chiaravalle (Ancona). Twenty-eight boys (eight years) took part. Once a week the pupils listened to a radio programme for schools; immediately afterwards they had a writing exercise, which was either a letter, or a dialogue connected with the broadcast. By the end of the school year, the written exercises were collected and classified. Later on they were read and criticised.

Conclusions:

The results showed a gradual and continuous improvement of the capabilities of listening and perception. This was true both for sounds in general and for words.

6.A.89 *An Investigation by Statistical Methods of the Effective Communication of Educative Material and an Assessment of the Factors making for such Communication, with Special Reference to Broadcasting.*
TRENAMAN, J.
Thesis for Ph.D. degree, Oxford University, 1961. (U.K.)

Purpose:

To assess the effectiveness of communication of education programmes in sound and television broadcasting.

Procedure:

Seven different types of material were presented in Stage 1: five in sound, television and literary form; one in sound and television; and one in sound only. The test pieces were presented to 1,020 adults in groups of about thirty-five at a time. Systematic sampling was based on London borough electoral registers. Comprehension tests, tests of previous knowledge, presentation preference, etc., were administered.

Stage 2, concerned with the variables in the message itself, was confined to television programmes. The study was a half replicate of a twenty-seven factorial design, accommodating sixty-four programmes in ten blocks of four programmes. Factors chosen after a pilot run were: interest of the subject matter, verbal difficulty (vocabulary and sentence length), verbalisation rate, number of major points, concreteness or abstractness of the subject matter, personification of the subject matter, visual movement.

Conclusion:

Occupation and education are closely correlated and the occupation scale is also closely linked to intelligence measures. Television versions obtained slightly higher scores than radio versions, and the latter were slightly more effective than the printed ones, but the differences were not large enough to apply to any programme. Concreteness of the subject was outstandingly significant at all levels

of occupation, personification became more important at the lower occupational levels, and dramatisation was more highly significant among less skilled workers. Content factors are much more significant than expressions or style. Concreteness of theme, dramatisation and personification are essential to the lower 50% of the population. Some personification is necessary for the next 25%.

6.A.91 *The Intelligibility of Broadcast Talks.*
VERNON, P. E.
B.B.C. Quarterly, Vol. V, No. 4, 1950-1951, pp. 206-210. (U.K.)

Purpose:

To investigate the responses of army recruits to fifty broadcast talks in an attempt to discover what features, if any, differentiate the more from the less successful.

Procedure:

During January to May 1950 Army Education Groups in the Home Commands listened to the broadcasts in the customary way and then before any follow up, filled in printed sheets on which the subjects recorded their assessment of the degree of difficulty of the talk, and its "interestingness". Then each listener tried to write down in his own words as much as he could remember of the main points of the talk. The educational and intelligence grade of each recruit was known and the sample studied was representative of the whole range of ability, with a total of 4,613 subjects (about ninety-two per broadcast). The papers were marked according to a scheme on a scale of 0-12 marks, a mark of 3 being taken as the borderline below which it appeared that the listener had gained practically nothing of the main points.

Conclusions:

The interest aroused by the content of a talk is much more important than any other factor; the most successful talks deal with concrete subjects which are familiar to the listener or affect them personally. Concreteness of treatment as well as of subject matter is desirable. For example, more than five abstract nouns and less than five active verbs in an average sample of 100 words provides a rough index of difficulty. More than half a dozen teaching points per talk are a disadvantage. Comprehension is diminished by flowery or literary language and too many prepositions, i.e. complex sentence structures. On the other hand conversational speech, i.e. using devices for popularising the style of presentation does not necessarily enhance intelligibility. A good broadcaster, with an interesting topic can make himself understood in much more difficult language than experts on readability would approve.

SECTION 7

DISC AND TAPE RECORDINGS

Group 7.A—General

Group 7.B—Foreign language teaching

7.A.1 ***Instruction of Industrial Workers by Tape Recorder.***
AGAR.
Affärsekonomi, No. 10, 1962. (S)

Purpose:

To investigate the effect of instruction on sound tapes compared with other forms of instruction.

Procedure:

Several companies have made investigations: for instance, the L. M. Ericsson Corporation (at nine factories), Volvo-Kopings Verken Ltd., Bultfabriken (The Bolt Factory), Overums Bruk (Overums Works), a number of laundry companies, and Rödakorshemmets Sjuksköterskeskola, the training school for Red Cross nurses, Industrial workers, both young and old, have been trained.

After studying methods of work a manuscript is prepared for the sound tape. The manuscript must give information as to the adequate organisation of the place of work and tools and other details of equipment required for the performance of the work in question. To facilitate increased speed in work, the instruction is made shorter and shorter by systematic removal of words without a decrease in the clarity of instruction.

An instructor takes charge of the person to be instructed and explains to him the method of instruction by help of sound tapes. Then he describes the work in general terms. After that both the instructor and the pupil put on earphones, and the tape recorder is started. The instructor now performs the job, while the pupil listens and watches. If a step is unclear to the pupil, the tape recorder is stopped, the tape is played back, and the same step is repeated.

When all the steps have been explained, the instructor and the pupil change seats, and now the pupil has to perform the work according to the instruction and show if he has grasped the instruction or not. When the pupil has in the main understood the instruction, he is left by himself to do the job. He can then consult the tape recorder over and over again on steps that are unclear to him.
To date about 500 industrial workers have been instructed in doing 200 different jobs.

Conclusions:

A comparison of the time that beginners need for training with or without instruction by help of sound tapes and the advantages that have been gained through the instruction by sound tapes can be summarised:

(*a*) The instruction is unchanged on every occasion, and can be altered only if other methods of work need to be introduced.
(*b*) At any time the pupil can "consult" the tape without feeling embarrassed.
(*c*) All the pupils get the same good quality of instruction.
(*d*) The pupil is in direct contact with the person who has worked out the methods.
(*e*) The time needed for training has generally been reduced by half or even more.
(*f*) The tape can be recorded as long as the work in question is carried out, and is an effective aid when the methods shall be controlled.
(*g*) The tape can serve as a "book of reference", when the work in question occurs for a second time.
(*h*) The tape serves as a reliable basis for negotiations with industrial workers.
(*i*) Safety precautions can be learnt at the same time as the methods of work.
(*j*) The instruction leads to the desired quality of work.
(*k*) To a high degree the instruction with the help of sound tapes facilitates the instruction of foreign workers. Instructions can be translated into other languages.

7.A.11 *The Tape-Recorder in Scottish Schools.*
ELLIS, R.
Scottish Educational Film Association 1962, 37 pp. (U.K.)

Purpose:

To collect, collate and publish information about the use of tape-recorder equipment.

Procedure:

A questionnaire was sent to every school in Scotland equipped with a recorder asking for details of problems relating to day-to-day use and the solutions arrived at. 434 schools out of 600-odd sent in replies.
Information was collated in terms of equipment data, usage in primary and secondary schools, tape recording usage, tape libraries, courses and production, technical problems of supply, maintenance and usage and the development of tape exchange.

7.A.33 *Exchange of Tape-Recorded Letters between Schools.*
PIRKHEIM, F.
S.H.B. Film-Post, 1960, No. 71, 9 pp. and No. 83, 5 pp. (A)

Purpose:

To investigate the use of tape-recorded letters in teaching language, local history and geography, and civics.

Procedure:

In 1957, the first tape-recorded letter was exchanged between the nine- to fourteen-year-old children of the St. Ulrich School in Styria and a neighbouring school. The children recorded their names and something about their native villages, and also sang a folk song. Other tape-recorded letters contained puzzles taken from geography, arithmetic, geometry, etc.

Conclusion:

This method of instruction had real, practical results: compositions were carefully written and from these genuine messages conveyed to children of the same ages, a genuine relationship resulted.

7.A.44 *Education by Tape-Recorder at Hintersdorf.*
WEIDMANN, J.
Pädagogische Beilage zum Verordnungsblatt des Landesschulrates für Niederösterreich, 1961, III. (A)

Purpose:

To investigate the use of tape recorders in a one-room school.

Procedure:

The twenty pupils at the school belong to eight different age levels. Tape-recorders and head sets, which keep out all outside sounds, serve to subdivide the classroom and thus make direct instruction on several different levels possible.

The method has been used with approximately 100 teachers, and joint production of tape-recordings for the use of several schools has been initiated.

Outline of a lesson by tape-recording: plants, pictures, atlases, notes, instruction sheets and questionnaires are laid out on the desks of the fifth to eighth forms. The teacher turns his attention to the pupils of the lower grades (first to fourth forms): the pupils in the upper forms put on their earphones and carry on according to the instructions given by tape: some dissect a flower, some take dictation, others compare pictures and atlases on the basis of a geographical lecture; the pupils of the eighth form, for example, listen to a historical lecture. After thirty minutes of instruction by tape-recorder the pupils report briefly on the information they have received; then they start on the written assignments given to them by their teacher via the tape-recorder.

Every day starts with a period of listening. The subjects taught by this method are: geography, history, nature study, languages, spelling, essay-writing and arithmetic. With the exception of spelling and arithmetic (fifteen minute periods) each listening period lasts thirty minutes. The rest of the time is spent in carrying out the given assignments.

The technical equipment of the school at Hintersdorf consists of four tape-recorders, several hundred tapes and enough earphones for the children of the upper forms. The connecting cables lead from the tape-recorders to the attic; over an arrangement of pulley and counterweight and through openings in the ceiling they reach the desks; there the earphones are attached by means of plug-type connections.

The tape-recorded lessons are spoken in a conversational manner; they are enlivened by songs, animal noises, sound effects and even short dialogues.

The children look forward to these lessons. Because the headsets exclude the outside world and the children are alone with the voice of the teacher, they show an extraordinary degree of concentration.

Conclusions:

By using this method, rather than direct dictation by the teacher, a 30% decrease in errors was achieved; this fact was borne out by tests.

The results of teaching in a one-room school have been markedly improved by the use of this method; they now approach the results obtained in schools with individual classes.

Group 7.B : Disc and tape recordings : Foreign language teaching

7.B.3 *Research in the Usefulness of Audio-Visual Aids in Foreign Language Instruction.*
Aviso, No. 2, Wien, 1958. (A)

Purpose:

To investigate whether audio-visual aids increase the degree of retention of English taught to children twelve and thirteen years of age.

Procedure:

2,516 children (674 boys and 1,842 girls) in the sixth and seventh forms took part in this experiment.

In forty different classes a selected story was read in English and discussed; according to the length of the story three to six lessons were required for this task.

The children were given a test and were given texts of the stories containing thirty-three blank spaces to be filled in. For each correct answer three points were awarded; partially correct answers received one or two points. Thus a maximum of ninety-nine points could be achieved; the average result, however, was only 56·5 points.

Similar selected stories were presented to another fifty classes. In these classes, however, coloured illustrations of the selected pieces were projected with filmstrips and a tape-recording of the story, read in English by a native speaker, was used. Depending on the length of the story, the time spent on this test also was three to six lessons. In these cases, the average result of the test amounted to 74·7 points.

The tests were carried out most carefully. Only stories which usually appeal to pupils were selected. In order to gain experience and to ensure correct results, preliminary tests were conducted with 1,646 children. (The results of these preliminary tests are not included in the results cited above.)

Conclusion:

The results of the tests showed that with the use of audio-visual aids retentive capacity was increased by 32%. English language instruction for twelve- and thirteen-year-old children may thus be effectively improved.

7.B.16 *Pédagogie audio-visuelle des débuts de l'anglais: une expérience d'enseignement à des adultes.*
(Audio-Visual Methods in the Teaching of English to Beginners: An Experiment in Teaching Adults.)
GUENOT, J.
Editions S.A.B.R.I., Paris, thèse de doctorat de 3ème cycle, 1964, 250 pp. (F)

Purpose:

A study of methods in the use of teaching machines: the study is based on the teaching of English to adult beginners with the use of audio-visual material produced by the Centre Audio-Visuel in Saint Cloud.

Procedure:

The course consisted of forty audio-visual lessons; each lesson had a magnetic tape (on which was recorded a spoken text) and a filmstrip (on which there are as many pictures as there are cues on the magnetic tape). Dialogues were recorded to recreate English as it is spoken in England. The students follow one hour of class in the classroom after which they have half an hour in the language laboratory, where each student has the use of a tape-recorder. A double track tape makes it possible for the student to listen to models and to record his own pronunciation afterwards.

Conclusions:

The evaluation of the results obtained by this method of teaching was made on three levels: imitation, progress; and pronunciation. The author stresses the fundamental role that the image plays in audio-visual teaching.

7.B.26 *English without a Book.*
Pedagogisk Forskning, Spring 1962. (S)

Purpose:

The construction of tests of understanding and pronunciation by means of recordings, the measuring of early foreign language training.

Procedure:

The teaching is performed by means of pictures and tape recordings; no teacher is actively involved. Longitudinal studies have been made of pupils with early language training as compared with pupils without such training. The pupils, aged 7-11 years, were subsequently tested.

Conclusions:

Between seven and eleven years, the results improve as age increases. It is possible to rate recordings with test-retest. By use of comparison scales (psycho-physical method), the reliability will be ·95. The work is in progress and as yet no results of the longitudinal study have been published.

SECTION 8

TELEVISION

8.A.5 ***Your Life in Their Hands.***
Audience Research Report, VR/58/598, B.B.C., 1958, 58 pp. (U.K.)

Purpose:

To investigate a number of questions concerning attitude changes which might have resulted from viewing this series by a large audience, inter alia, the extent to which the series affected viewers' worries about their health, their confidence in treatment provided by the National Health Services and promoted the belief that specialised treatment is available everywhere.

Procedure:

In May and June 1958, a month after the ending of the series, a number of "group meetings" was held in London and two further meetings were held in Manchester. Questions were put at these group meetings to a sample of TV owners. The answers of those who had seen none of the series were contrasted with those who had viewed it. 750 people attended in London and 150 in Manchester. The questions were administered in such an order as to delay until the last possible moment the recognition that this particular series was the mainspring of the exercise. In assessing the effects an adaptation of Belson's Stable Correlate Design was employed. This method irons out most of the difficulties in the sample and gives a reasonably accurate view of modifications of attitude resulting from the series.

Conclusions:

The series does not seem to have made much difference to worries, nor to have affected attitudes towards general practitioners or to hospitals, but did increase general knowledge a little and did give more confidence in the treatment offered there.

8.A.9 *After Five Years: A Report on B.B.C. Television Broadcasting.*
B.B.C., London, 1962, 44 pp. (U.K.)

Purpose:

To review the five years' school television service.

Procedure:

A review of the first five years of B.B.C. school television: five broadcasts were described and commented upon; two series were examined in detail in terms of pupil and teacher reaction, and a brief survey was provided of all series produced. The teacher's role and the problems were discussed in terms of a hypothetical primary, secondary modern and grammar school, presenting a composite picture of reception, treatment and response.
Future developments were discussed in respect of equipment, television and teacher shortage and the relationship to other media, and a section was given to discussion of programme policy in the different school ranges, primary, secondary and in technical colleges. Statistical data are presented in a centre page insert and an appendix.

Conclusion:

The school television service has established almost a canon of series for which there is a regular demand. There must be a two-way process between teachers and broadcasters.

8.A.12 *A Technique for Studying the Effects of a Television Broadcast.*
BELSON, W. A.
Applied Statistics, Vol. V, No. 3, 1956, pp. 195-202. (U.K.)

Purpose:

This paper describes a research technique first devised by Dr. Belson in 1953, in an intensive study of the extent to which a series of four television programmes called "Bon Voyage" achieved its aim. It was necessary to devise a technique by which audiences could be tested only after seeing the programme, not before. Methods had to be found for eliminating all or most of that part of the difference between test scores of two groups, which were attributable to the fact that the two groups were different to start with. This technique Dr. Belson calls Stable Correlate Design, a method used later in other studies. It is described fairly fully in an entry entitled "The Effects of Television upon the Interests and Initiative of Adult Viewers", read to the British Association for the Advancement of Science in August 1956.

8.A.13 *Effects of Television on the Interests and Initiative of Adult Viewers in Greater London.*
BELSON, W. A.
British Journal of Psychology, Vol. L, 1959, pp. 145-153. (U.K.)

Purpose:

The main aim of this study was to measure the effect of television upon the interests and initiative of adult viewers in a specific urban area and to relate the extent of the effect to length of set ownership.

Procedure:

The Stable Correlate Design was used for the isolation of effects. There was extensive preliminary test construction and the measurement of television's effects was made against a representative cross-section of the public's interests in one case and of their acts of initiative in the other. The final survey was based on 800 cases and the construction of measuring devices upon about 3,000.

Conclusions:

The effect of television has been to reduce both interests and initiative. The reduction of interests is not only in terms of activity level but in viewers' feeling of interest as well. Even when personal interests are featured on television programmes interest is revived to only a very small degree. Television effects do however vary markedly from one group of interests to another. The loss of initiative and interests extends over a period of five to six years. Generally speaking the loss is greatest in the first few years after which there is a gradual recovery.

8.A.14 ***The Effects of Television upon the Interests and the Initiative of Adult Viewers.***

BELSON, W. A.

B.B.C., 1956, 11 pp. (U.K.)

Purpose:

To test two theories:

(*a*) television reduces viewers' interests, and

(*b*) reduces the frequency of occurrence of acts of initiative.

Procedure:

Dr. Belson spent some time devising an experimental design which he calls Stable Correlate Design; he built this into a booklet questionnaire which was given to random samples of viewers and non-viewers in the adult population of Greater London, who had one week in which to complete it. A total of 350 non-viewers and 450 viewers completed the booklet. Because the design is of special interest, it is quoted in some detail.

"The method begins with a straight comparison of test scores of viewers and non-viewers, and statistical methods are then used to strain out as much as possible of that portion of the difference in test score which is attributable *not* to TV, but to the viewers and non-viewers being different to start with. This correction of the non-viewer score is achieved through a refinement of matching—though it differs from ordinary matching in two important ways.

"First, the matching criteria are selected empirically as being high-powered predictors of test score—a process which requires the inclusion in the questionnaire of a large number of proposed matching criteria (perhaps up to a hundred) with subsequent analysis to select a composite of two or three of those most predictive of the test score. It is essential that these predictors or matching criteria are not themselves open to influence by television.

"Secondly, there is no discarding of unmatched subjects—instead the test score of the non-viewer group is adjusted through a regression equation to give an estimate of what it would have been had

the two groups (viewers and non-viewers) been the same to start with in respect of the chosen matching criteria. A comparison of this adjusted test score with the test score of the viewer group then provides a direct estimate of television's real effect.

"Measuring Devices. Within this design the necessary measuring devices were constructed and eventually applied in a random type survey. These measuring devices or tests were constructed through preliminary random surveys in Greater London, involving 3,000 interviews in all. The final product was a representative cross-section of the interests of the Greater London population, this cross-section consisting in all of fifty different fields of interest. By studying television's effects in relation to this broad cross-section, it was possible to come to a reliable conclusion about what television has done to interests in general—something which could not be obtained from some arbitrarily chosen (and probably unrepresentative) set of interests. A thoroughly representative cross-section of the population's interests was essential. The same arduous procedure was followed in respect of the acts of initiative: a thirty-item cross-section was drawn up of the acts of initiative currently occurring in the Greater London population. This cross-section was used as a frame of reference with which change could be assessed. With the initiative cross-section there were two preliminary surveys followed by standard test-construction.

"These two measuring test devices were built into a booklet questionnaire which was developed for this study."

Conclusions:

The results are set out in four graphs. These, summarised, indicate that television reduces the frequency of occurrences of viewers' acts of initiative, and that it reduces their interests. The loss is substantial in the early years of ownership, but after that recovery sets in which is nearly complete after about five years. The population, given time, can take television in its stride.

8.A.15 *Learning and Attitude Changing Resulting from Viewing a Television Series, "Bon Voyage".*

BELSON, W. A.

British Journal of Educational Psychology, Vol. XXVI, 1956, pp. 31-38. (U.K.)

Purpose:

To find out to what extent in this series of four programmes the viewers:

(*a*) learned the French words and phrases presented;

(*b*) learned the general information presented;

(*c*) sustained a reduction of their apprehensions about language and other difficulties involved in making a trip to France.

Procedure:

The method used was to compare, after the broadcast, two groups of people, one of viewers and one of non-viewers. Approximately 100 viewers and 120 non-viewers came as invited to Broadcasting House, in groups of fifteen or twenty. The first viewer meeting was held two days after the last of the series and the other meetings

followed on consecutive days. They were tested on their recall of words and phrases and were given an attitude test dealing with issues concerned directly or indirectly with making a trip to France. Special adjustments were made to the scores of the non-viewers to eliminate that portion of the difference in test scores between the two groups which arose out of conditions other than the exposure of the viewers to the programme. (See previous entries by Belson for further description of this method.)

Conclusions:

The results indicated that the programme had produced an increase in viewers' knowledge of words and phrases and of the facts presented but that this was accompanied by an increase in viewers' apprehension about language difficulties and about visiting France generally.

8.A.17 *Recherches sur l'utilisation du circuit fermé de télévision pour la formation des enseignants.*
(Research into the Use of Closed-Circuit Television for the Training of Teachers.)
BERTRAN, S.
Mémoire dactylographié, Centre Audio-Visuel, Saint-Cloud, 1962. (F)

Purpose:

To study the immediate reactions of student teachers in front of their own image; to analyse the results in order to make an experimental plan for future studies.

Procedure:

A first experiment was made with the seminar students of the Centre Audio-Visuel. Each of the students gave lessons once to other students, and the second time on television.
The second experiment was with the Secondary School Teachers in training, who first gave their lesson in front of the other students, and then a second time on television.
The third experiment was with the seminar students in the Science section of E.N.N.E.P. who gave their lessons first in front of the other students, and then on television, and a third time directly to the public.

Conclusions:

From this study arguments were put forward in favour of the use of closed-circuit television in the training of teachers. The presentation of a course on television forces the teacher to be concise, to improve his method, and brings out the essential points of his lesson. Also, it offers the future teacher an opportunity to gather objective knowledge about himself and so helps to modify and correct his way of teaching.

8.A.34 *Report of an Investigation into the Associated Rediffusion Series entitled "The Story of Medicine", 1960-1961.*
DAINES, J. W.
University of Nottingham, Institute of Education, 1962. (U.K.)

Purpose:

To ascertain the effect of certain educational television programmes upon children in the classroom.

Procedure:

1. The film was shown at a number of different types of schools and to children of varying intelligence and age range.
2. A questionnaire was given designed to elicit (*a*) general attitudes to the programme, (*b*) an estimate of the comprehension of the main facts.

Conclusions:

1. The programme appears to have been highly acceptable to the children.
2. A number of points within the programme were found to be difficult to understand.

8.A.35 *Report of an Investigation into the Associated Television Series "Theatres and Temples of the Greeks".*
DAINES, J. W.; NEILSON, J. B.
University of Nottingham, Institute of Education, 1963. (U.K.)

Purpose:

To check mass rating conclusions of audience reaction by more individual observations.

Procedure:

1. Observation of a class of fourteen-year-old girls of average to good intelligence in a bilateral school, in preparatory lessons, the programme viewing and in the follow-up lessons.
2. Examination of written responses obtained in short essays and questionnaire responses.

Conclusions:

1. There appears to be considerable evidence for what can only be called "telehypnosis". A considerable amount of factual material was acquired at a superficial level but there was very little understanding of the deeper significance and intentions of the programme.
2. This type of programme calls for a considerable degree of sophistication of outlook on the part of the audience.
3. There was a considerable amount of introjection and identification on the part of the audience of a novelette response nature.
4. The chorus was intensely disliked and stimulated resentment on the part of the viewers.

8.A.36 *"Discovering Science". (A report of an investigation into the B.B.C. series.)*
DAINES, J. W.; NEILSON, J. B.
University of Nottingham, Institute of Education, 1962. (U.K.)

Purpose:

To ascertain the impact of the programme upon children in the classroom and to estimate how far the children had understood the principles which lay behind the programmes.

Procedure:

223 children, 124 girls and 99 boys, with I.Q. ranging from 85-135+ from four co-educational secondary modern schools and one girls' secondary modern school and one boys' secondary modern school were studied.

The pupils' response was ascertained by means of a questionnaire and tape recordings of discussions.

Conclusions:

Both pupils and teachers found the programmes of real interest. The principles underlying the content of the programmes were not understood.

There is danger of reduction of pupils' participation to a level of passive observation.
The linkman talks far too much and too often.

8.A.37 *Report on a Television Investigation: "Romeo and Juliet", Associated Television.*
DAINES, J. W.; NEILSON, J. B.
University of Nottingham, Institute of Education. 1963. (U.K.)

Purpose:

A pilot survey to perfect techniques for investigating children's responses to a series of programmes, with special attention to individual responses in the classroom.

Procedure:

A class of girls 14+ years of age of I.Q. range 100-115 were studied. The children were observed during the broadcasts and the follow-up lesson of a series of presentations of dramatists' treatment of the subject of love. At one broadcast the audience reaction was recorded by cine-camera through a one-way vision screen, and discussions were held with the children after each broadcast. Some of the discussions were tape-recorded without the participants' knowledge that this was being done. In addition, questionnaires were used to investigate general attitude, retention and comprehension.

Conclusions:

1. There was a high degree of concentration of interest.
2. The children reacted immediately against second-rate acting and enunciation.
3. There was a high degree of personal involvement.
4. Response to the language in terms of feeling was considerable on the part of a few pupils.
5. It is doubtful whether the children had much conception of the deeper significance of the play.

8.A.42 *Jugend und Fernsehen.*
(Young People and Television.)
DIVO, F.
Frankfurt a.M., 1961, 25 pp. (G)

Purpose:

This research registers the attitude of young people from 15-20 years towards television.

Procedure:

535 adolescents (15-20 years) took part in this experiment; of these
16% were students at school,
56% were working,
28% were students, taking their practical courses,
80% were living with their parents,
40% had no television set of their own.

Conclusions:

More than 50% of all young people read the programmes before watching television.

Boys liked sports programmes and crime plays.

Most of the girls preferred the light programmes.

All the young people said that television was an excellent medium because of its topical information, but objected to the bad quality of the programmes.

8.A.46 *Experiment in using Kinescopes for Adult Audiences.*
DUMAZEDIER, J.; SYLWAN, B.
Reports and Papers on Mass Communication, No. 26, UNESCO, Paris. (F)

Purpose:

To study the possibility of bringing TV programmes to areas that do not have television and of retaining programmes for further intensive study and repetition.

Procedure:

Telerecordings of programme series were shown in thirty experimental communities. The showing was preceded by an introductory statement and followed by an organised discussion.

Objective and subjective reactions were recorded and compared. Participation in the discussions was studied in relation to socio-professional categories.

Conclusions:

There was no evidence that the audience participates more actively with telerecordings than with films. Telerecordings promote a reflective attitude; their production and distribution can stimulate co-operation between television producers and rural adult education groups.

8.A.47 *The Impact of Television Programmes on Rural Audiences.*
DUMAZEDIER, J.
Press, Film and Radio in the World Today, UNESCO, Paris, 1956. (F)

Purpose:

To stimulate modernisation in rural areas through a series of TV programmes especially produced for that purpose and utilised through organised viewing groups.

Procedure:

The survey was conducted in fifteen chosen communities where tele-clubs already existed. Community viewing was arranged; the actual showing of the programmes (Sunday in early evening hours) was preceded by an introduction and followed by organised discussion.

Audience reaction was recorded in relation to specific problems of modernisation in agriculture. Questions were asked during discussions on general problems and answers were recorded.

Conclusions:

Collective viewing can be a means of education in rural areas. Group viewing activities can encourage self-expression and provide a centre of discussion and entertainment. Audience attitude changed significantly towards certain specific problems.

8.A.57 *The Use of Television as an Instrument of Education in Great Britain.*
FLOURNOY, D. M.
University of London, Institute of Education, 1962, 140 pp. (U.K.)

Purpose:

To establish the reasons for the national educational networks in television in Britain (B.B.C. and I.T.V.) and to discover differences in British and American practice.

Procedure:

Review of literature, visits, observation and interviews.

Conclusions:

British educationalists are much clearer about the limitations of television as a medium of instruction than the Americans. Television is still an experiment; "A headmaster cannot afford to take its services seriously until it has made a substantial improvement in the quality and the range of its programmes and received wider acceptance from the world of education." The importance of television as an instrument of education in Great Britain will be determined by the attitudes of leading educationalists towards it.

8.A.67 *Television and the Family.*
GORDON, M.
Coventry Tutorial Class in Psychology, 1953, 20 pp. (U.K.)

Purpose:

To conduct a survey on the effect of television on family life, mainly to give the members of the Tutorial class an opportunity to apply modern statistical methods of psychological research.

Procedure:

Between November 1952 and August 1953, 1,000 questionnaires were sent out in the city of Coventry; forty-nine schools were selected to cover districts of the greatest diversity. The heads of the schools gave the questionnaires to children whose parents had television sets, with an invitation to the father to fill it in.

250 replies came in, representing an interview with one in every hundred heads of families who have television sets.

Conclusion:

Television keeps families at home and the cinema is the greatest casualty among the other forms of entertainment. It has proved to have a stimulating effect and has created new common interests among members of the family. It enriches family life and has brought into many homes an element of culture which previously had been absent. If producers can devise well-balanced programmes of good quality catering for both education and entertainment then television will remain a positive element in modern British family life.

8.A.79 *Jugend und Fernsehen.*
(Young People and Television.)
HEINMANN, P.; FOERSTER, O.; JORSWIECK, E.
Juventa-Verlag, 1958, München. (G)

Purpose:

To examine the subjects and the educational value of afternoon programmes of German TV and their effects on youth.

Procedure:

200 programmes for young people were examined. Six model programmes were used as test screenings with 900 young people. Their reactions were recorded by questionnaires (with a second questionnaire four weeks after the first screening), tape recordings, compositions and drawings.

Conclusions:

Picture and sound in the programmes did not meet the elementary pedagogical requirements. Camera technique was primitive, there was too much information and the dialogue inappropriate. Nevertheless it seems to be possible to show this programme in youth groups. Suggestions for future school television programmes were given.

8.A.81 *Erfahrungen und Konsequenzen aus dem Schulfernsehversuch des NDR.*
(Results of Experiments in Schools Television.)
HEINRICHS, H.
Jugend, Film, Fernsehen, VI, 2, 1962, München, 17 pp. (G)

Purpose:

This research registers the behaviour of pupils and teachers while watching transmissions of school television.

Procedure:

The research was based on experiments in using school television in classes of various grades. 41,561 pupils took part and the results were registered by means of questionnaires. From 1,866 classes 66% belonged to elementary schools, 21% to secondary schools, 13% to grammar schools.

Conclusions:

78% of the teachers believed that school television does not encourage passivity. By doing follow-up work active participation can be achieved. The imagination of children was developed. Most of the children's pictures and drawings show individual character. 93% of the teachers believed that they could be helped by school television. Only 6% rejected school television. 2% of these based their rejection on these transmissions, 5% on passivity.

8.A.85 *Parents, Children and Television.*
Her Majesty's Stationery Office, 1958, 48 pp. (U.K.)

Purpose:

To discover what parents as a whole feel about television's influence on their children.

Procedure:

The interviews took place from 14th April - 8th May, 1958, in holiday and non-holiday time. Three matched samples of 400, with both B.B.C. and I.T.A. services, 400 with only B.B.C. and 400 without any television were used; the parents were aged between 30-49, having children between the ages of five and thirteen. The interviewers asked parents certain questions from a questionnaire form prepared by Research Services. These included questions about the child's leisure activities, general problems of parenthood and some general questions about children's attitudes to television.

Conclusions:

More parents approve of television than disapprove, as they believe that it stimulates children to think. It has made family life happier and more interesting, children stay at home more, families spend more time together; there is evidence of fairly extensive parental guidance in the selection of television programmes.

8.A.88 *Television and the Child.*
HIMMELWEIT, H. T.; OPPENHEIM, A. N.; VINCE, P.
Oxford University Press, 1958, 522 pp. (U.K.)

Purpose:

An inquiry into the impact of television on children and young people.

Procedure:

Including the writing of the report, the inquiry took four years to complete. It was carried out in London, Portsmouth, Sunderland and Bristol. A total of 4,500 children was tested leaving a total of

1,854 matched viewers and controls. Two age groups were studied, 10-11, and 13-14-year-olds. An additional survey was carried out in Norwich before and after the opening of a transmitter. Some additional special studies were carried out to investigate problems for which other techniques were needed. In the main survey, each viewer was matched individually with a twin "control" child, of the same sex, age, intelligence and social background, and as far as possible from the same classroom. The children were asked to keep a diary for one week, filled in privately at school, in which they recorded everything they did between leaving school and going to bed. Six weeks later questionnaires were given to the children, containing detailed questions about their leisure activities and parallel questions for each of the mass media. Measures of the children's personalities were obtained from the teachers' ratings.

Conclusions:

The book contains not only a full account of the experimental design, and the results in detail, but also suggestions for programme improvement and for future research. The broad picture of the influence of television on children's leisure interests, knowledge, outlook and values is not drastic. At best it can implant information, stimulate interests, improve tastes, and widen the range of the child's experience. At worst it can lead to a reduction in knowledge, keep children from worthwhile activities and implant or accentuate stereotyped value judgments. Depending on content, it can frighten and disturb, particularly those who are emotionally insecure.

8.A.90 *Rapport sur l'expérience de classe de mathématiques en circuit fermé du Lycée de Sèvres.*
(Report on the Teaching of Mathematics using Closed-Circuit Television at the Lycée of Sèvres.)
Institut Pédagogique National, Paris 1959, 29 pp. (F)

Purpose:

To measure the effects of a series of mathematics programmes included during the traditional classroom course and presented on television by a teacher. To discover whether teaching by TV is more or less effective than traditional teaching, or equally effective. To determine the form, function and ideal length of mathematical programmes.

Procedure:

Two Sixth classes and two Fifth classes of pupils took part in this experiment from the Lycée de Sèvres.

Conclusions:

Four conclusions were drawn from this experiment:

(*a*) The effectiveness of teaching by TV: at the end of the experiment the two Sixth classes (which were the weak classes) did not change in rank. On the contrary the two were lower than the class which had received traditional teaching (especially in geometry). In spite of the absence of objective controls we can assume from these results that TV is more suitable for the Sixth (which is borne out by earlier findings).

(*b*) The length of the course seems to play an important part in holding pupils' attention (there is a rapid decline after the programme); the personality of the teacher and the announcement of possible tests are influential factors. The aptitude for mathematics, on the other hand, does not seem to be an important factor in the attention given to the programme.

(*c*) The teaching possibilities—these were probably not used to their fullest extent because of the lack of time and personnel.

(*d*) The form of the television programme and in particular the following problems:
Length (limit the courses to half an hour).
Amount of material (the necessity of planning the course, bearing in mind that there is a slackening of attention after twenty minutes).
The rhythm (reduce the teacher's lectures and increase the use of visual material).
Authority (depends on the personality of the teacher but also on the technique of editing: when and how often to show the teacher at which angle, etc.).

Mathematics and television are thus not incompatible but there are certain technical problems and teaching and psychological problems to be resolved for a better use of TV in direct teaching.

8.A.98 *Use of Television for Research Purposes.*
KOENIG, G.
Biologische Station Wilheminenberg, Wien, (unpublished). (A)

Purpose:
The use of closed-circuit television for observing animals.

Procedure:
A television camera placed close to the animals and connected to the observer 1,000 feet away permits continuous observation of the animal's behaviour. Observations throughout the entire day were possible.
Since animals cannot see infra-red light, the use of a special infra-red tube and a spotlight with an infra-red filter allows the observation to be continued during the night.
Documentary evidence of particularly interesting phases may be obtained by photographing the televised pictures. It is important that the technical arrangements permit a change in the aperture of the camera lens by remote control as required by light conditions. If a remote-control zoom lens is used on the camera, observation in detail is possible.

8.A.104 *Recherches sur les émissions de télévision scolaire, Deuxième Série. (Research into Schools Television Programmes, Second Series: The Transfer from the Concrete to the Abstract.)*
LEBOUTET, L.
Bulletin de recherche du Centre Audio-Visuel, R.8, 1957, 17 pp. (F)

Purpose:
To study the transfer from the concrete to the abstract. To find out to what degree this is facilitated by television techniques such as

mock-ups, models, camera movements, etc. To study the value of pedagogical procedures utilised in programmes used by teachers, and most particularly the preparation before the programmes and the follow-up work after the programmes.

Procedure:

600 pupils (10-13 years) took part in the experiment. The research used two geography programmes which had "The Map" as its subject. The method was the following: before each programme a questionnaire was given to test knowledge of the subject before the programme, and after each programme a second questionnaire was given to test knowledge acquired from the programme. Finally, the different classes were subdivided into control groups and experimental groups to study the effectiveness of the various techniques used; two experimental groups were prepared for the programme and did follow-up work; the third group used only the programme. The three control groups used:

1. preparation, programme, no follow-up work;
2. no preparation, programme, follow-up work;
3. no preparation, programme and no follow-up work.

The results obtained were analysed:

1. by using the variance method (which permits the comparison of the results of the different groups);
2. by the study of the analysis method (co-variance) (which allows us to take into account the influence of the average amount of knowledge before the programmes).

Conclusions:

This research indicated the following:

(*a*) the acquisition of knowledge after the TV programmes;

(*b*) a significant influence on the knowledge averages previous to the programmes;

(*c*) an influence on the results according to the different procedures used by the teachers of the programmes;

(*d*) the differences in the acquisition of knowledge between the different classes;

(*e*) There was no particular age or sex influence within the framework of this experiment.

8.A.107 *Les circuits fermé de télévision dans l'enseignement supérieur aux Etats-Unis.*
(Closed-circuit Television in Higher Education in the U.S.A.)
LEFRANC, R.
Ecole Normale Supérieure de Saint-Cloud, (Thèse de 3ème cycle), 1963, 446 pp. (F)

Purpose:

A critical study of the experiments in the use of closed-circuit television in the U.S.A., from 1954 to 1959 at Pennsylvania State University, New York University, Iowa University, Miami University and Purdue University.

Procedure:

After an introduction on the general conditions under which TV is used in the Universities, conditions particular to Higher Education in the U.S.A. are explained. Then comes a description of the materials used, and a critical analysis of the results obtained from these experiments. The author studied the reactions of professors and the students to the introduction of TV into the Universities. The second part of the thesis under the heading "Bilan et Perspectives" approached the following problems in a critical and constructive manner:

1. Type of course televised; the influence of the adaptation of the courses, the modifications of the form of the courses, the adaptation of the professor; the technical, financial and pedagogical limits of a televised course.
2. The principal consequences of the introduction of closed-circuit television into the Universities; the changes taking place in teaching; the cost of this new teaching technique and the consequences it has on University architecture.

The last chapter consists of a critical survey of the problems still to be solved and puts forward proposals for a co-ordinated research plan.

8.A.110 *Television and Tele-Clubs in Rural Communities.*

LOUIS, R.; ROVAN, J.

Reports and Papers on Mass Communication, No. 16, 1955, UNESCO, Paris. (F)

Purpose:

To explore the possibilities of community development with the aid of community TV viewing groups and TV programmes especially produced for these audiences.

Procedure:

Several series of TV programmes, dealing with problems of civics and social education, were produced and telecast. They were received by rural adult education groups and evaluated through discussions.

The interest aroused by the series was measured through questionnaires.

Conclusions:

1. TV programmes for rural adult education can change attitudes.
2. The programmes should be conceived in close contact with the audience envisaged.

8.A.116 *The Influence of Home Television Viewing on Children in a Mixed Secondary Modern School.*

MITCHELL, W. W.

Thesis for M.Ed. degree, University of Manchester, 1958. (U.K.)

Purpose:

To discover the time spent by children in viewing on weekdays, its effect on homework, on hobbies, on general knowledge, the effect

of viewing on their interest in the theatre, and the opinions held by children and their parents about the effects of television.

Procedure:

The investigation was carried out between January 1957 and July 1958 in a mixed secondary modern school in Cheshire with 300 to 400 pupils from urban and rural areas.

A survey was made of all the viewing done by the school in three weekdays in January and repeated with a small sample in the summer. Questionnaires, objective tests, free written expressions of opinion, records of the time spent on homework, were used for collecting data.

Conclusions:

Nine-tenths of the children tested viewed for an average of two hours forty-five minutes each weekday and two-thirds of this time is devoted to entertainment rather than instruction. Most children spent the required time on homework; viewing caused some stimullation of interest in hobbies, but apparently none in the theatre or orchestral music. There is no evidence that television viewing affected general knowledge, although children themselves think that it does bring information and widening of interests but at the expense of much free time and initiative. The parents who replied thought that viewing has created many new difficulties for the children but that its ultimate effect depends on the attitudes and the actions of the parents.

8.A.118 ***A Comparison of the Use of Television (B.B.C.) Programmes for Schools and Sound Films as a Teaching Aid.***
MUNDY, P. G.
Thesis for M.A. degree. University of London, 1962. (U.K.)

Purpose:

To determine which of the two media, film or television, was the more effective as a means of communicating information.

Procedure:

Four experiments were carried out and participants made assessments in a variety of ways.

Experiment 1. Two matched groups of secondary modern school boys received instruction from similar television and film material, made assessments on prepared sheets and discussed the programme.
Experiment 2. A group of students viewed Social Studies material presented to them alternatively week by week through television and film. The same assessment procedure was used as in Experiment 1.
Experiment 3. Comparison of the influence of the commentator in television and film was assessed by a questionnaire based upon the contents of television and film presented to two separate groups.
Experiment 4. One group of students watched a geography series of television broadcasts and a similar group was presented with a parallel series of films; assessment was made by means of a programme assessment form and by individual recollection freely written.

Conclusions:

The experiments indicated that there was no difference between film and television in promoting learning. Learning efficiency depended upon factors noted in the general conclusions.

8.A.119 *Discorso pedagogico sulla televisione.*
(Pedagogic Talk on Television.)
MURA, A.
Cineteca Scolastica Italiana, Roma, 1956, 24 pp. (I)

Purpose:

To study the educational value of television in general.

Procedure:

Pupils of "Telescuola" (Tele-school) took part in this experiment. The educational results of the courses organised by "Telescuola" were directly observed. The remarks of forty-five directors of the Provincial Centres for Audio-Visual Aids were collected.

Conclusions:

Remarkable educational results were achieved by "Telescuola" in rural districts. The social results were very important too.

8.A.120 *Discorsi Sulla Televisione.*
(Talks on Television.)
MURA, A.
La Scuola Editrice, Brescia, 1961, 115 pp. (I)

Purpose:

To study the value of television in mass education.

Procedure:

Pupils attending courses of the telecast; "Non è mai troppo tardi" (It is never too late), were observed over a period of three years. Reactions were assessed by means of written questionnaires.

Conclusions:

Positive results were obtained by television in the efforts to overcome illiteracy.

8.A.129 *Pilot Trials in Radio Instruction—Radiovision. (Report by USAID/T.)*
SEKERAK, R.
Radio Technician, 1963. (I)

Purpose:

This trial series was an investigation and demonstration of "Radiovision" in action. It was intended to be an example of the coordination of radio, AV aids, a kind of programmed instruction and team teaching. Because all phases of the work were carried out by inexperienced personnel, the project itself was an instructional device as well as a demonstration. The use of radio was motivated by

need for speeding up the total programme of instruction. The main objective was to find out whether students who were not being given adequate instruction could be reached with systematic information before normal development brought them within the framework of the educational system.

The pilot trial was based on the hypothesis that Turkish children can assimilate a given body of information through a combination of radio broadcasts and pertinent graphic materials, to a degree equal to or better than they could be by other means available to them at the present time.

Procedure:

The personnel which carried out the pilot trial consisted of three Turkish specialists assisted by one U.S. adviser. Supplementing the staff were Turkish curriculum-specialists who selected grade level, subject-matter and unit breakdown of material to be presented.

The final appointment of participating schools was made on the basis of a full range of the following factors: socio-economic status; student-teacher ratios; urban-rural representation; teacher preparation and ability; familiarity with experimentation. Thirty classes were selected according to the above criteria and the instructors were notified immediately of their selection as participants in the experiment.

The best teachers available, "Radio Teachers", were used as production assistants to the staff. Because of their knowledge of curriculum and subject-matter they provided their own material.

Arrangements were made with the radio station. Radio lessons were to parallel regular instruction as a minimum of interruption of the school programme was desired.

The unit selected was from Fifth grade science. Six lessons (three per week) of forty minutes' duration were broadcast. At the close, tests were administered by the same classroom instructor who presided during the broadcasts. A subject-matter test written by responsible Ministry authorities was the instrument by which an evaluation would be made.

The Evaluation:

Tests and questionnaires were designed to obtain responses in three areas. (1) *Student achievement;* (2) *teacher reaction* and (3) *parent reaction.* Control group classes were selected for their geographic as well as academic proximity to the experimental group classes. No attempt was made to isolate variables or to purify group relationship. All that was wanted was a rough measure of a large enough sampling to determine the general acceptance or rejection of the method.

On this basis, the results indicate that the method is generally accepted and that hypothesis was upheld. Turkish children can learn from the medium now being termed "radiovision".

Test Results: Analysis of raw scores reveals an average among the radio learners of 23·52 with a standard deviation of 4·8. The control group averaged 21·62 with a standard deviation of 5·02. A "t" test applied to the averages indicates a significant difference in favour of the radio learners at no less than the ·05 level of significance.

When scores are compared through standard percentiles, it is apparent that a higher percentage of radio learners made high scores than did the control group learners. A lower percentage of radio learners made low scores than did the control group learners.

Teacher Reaction obtained through check-lists was in general favourable. Only a core of about 10% of each group expressed opposition because of its threat to "normal" teacher-pupil relationship.

Parent Reaction: The answers to the questionnaire indicate that parents were almost unanimously interested in continuation of radio instruction.

Conclusions:

It is possible for Turkish elementary students to receive instruction via "Radiovision". The use of this method is qualified only by the limitations of radio coverage and the ability of the system to provide materials on schedule.

It is possible to use personnel in each phase of instruction more efficiently by the radio method than in "standard" instructional methods. Those highly trained and whose principal interest is in subject matter are able to concentrate on academic excellence in writing scripts and guides. Those most interested in child development are more free to devote time and energy to individual students according to the systematic apportionment of tasks to the team.

Every community has untrained citizens whose personality and interests make them desirable assets to the school staff. Their presence as room monitors and materials production personnel, increases the effectiveness of the trained staff and provides more satisfactory, continuous supervision for the learner.

The use of tapes in radio instruction makes the observation and refinement of lessons by radio teachers possible. It also permits teachers to assist in the production of programmed materials which accompany radio lessons when taped lessons are being repeated.

8.A.133 *Television Lessons and Pupils' Practical Work.*
ROYDS, A.
Visual Education, October 1963, pp. 2-3. (U.K.)

Purpose:

To report on one part of a larger piece of research, i.e. to estimate how types of practical work in a science lesson serve to stimulate pupils to similar activities.

Procedure:

The responses of 1,578 pupils in fifty-seven different schools to a programme "The World Around Us" were tested. The question examined here was "What of the things you saw on the programme will you try for yourself?" The replies were grouped in a classification used by the 1963 Gulbenkian Foundation report on Practical Work in School Science.

Conclusions:

The greatest impact in television lessons is made by the qualitative type of experiment and by experiments which aim at verification. This applies to material designed for primary schools.

8.A.134 *An Investigation into the Relationship between Programme Techniques and Pupils' Responses in a Television Programme for Schools.*
ROYDS, A.
University of Manchester, Institute of Education, 1961, 23 pp. (U.K.)

Purpose:

To measure the influence of various programme techniques on the responses evoked among the viewers.

Procedure:

300 pupils in ten schools having viewed the programme (I.T.V. "The World Around Us" series, final programme, Spring Term 1961) as usual were provided with writing materials and required to answer a series of structured questions. Data concerned with programme techniques were extracted from the script—as broadcast—of the programme.

Frequency of accurate mention by pupils was adopted as a measure of interest and understanding.

Conclusions:

There was a low correlation between frequency of mention and the sequence order in transmission. Telecine, exhibits and demonstration were the most effective techniques. Stills had a negative correlation. The research indicates further lines of enquiry which may be profitably followed in future investigations.

8.A.135 *An Investigation into the Efficiency of Schools Television Lessons in the Teaching of Elementary Science.*
ROYDS, A.
Thesis for Ph.D. degree, University of Manchester, 1963. Summary published in British Journal of Educational Psychology, Vol. XXXIII, Part 3, 1963. (U.K.)

Purpose:

To determine if, after viewing a schools TV lesson in elementary science, pupils' recall of subject matter is influenced by factors in the structure of the lesson, factors in the pupils' own natures and environments and by interaction between these two factors.

Procedure:

1,578 pupils were tested. Of these 872 were from primary, 649 were from secondary modern and fifty-seven from grammar schools. After seeing a programme in elementary science in normal classroom conditions, as part of a complete series of TV lessons, they wrote answers to questions based on the content to test their recall of the subject matter. Factors examined included lesson content, lesson method, programme structure; the effects of sex, intelligence, geographical distribution, type of school, and socio-economic grade were looked for.

Conclusions:

The grade of pupils' intelligence has the greatest influence on recall of subject matter. It also influences intention to attempt post-programme activities. Pupils' age has an effect on interest, recall of vocabulary, of scientific applications and of attention-gaining

devices. Urban pupils show greater interest than rural, as do girls compared with boys. Secondary pupils learn science applications better than do primary pupils. In the presentation of lessons, pupils' recall is influenced in the following ways: (1) topics which involve reasoning are more effective than those stated dogmatically, (2) repetition helps pupils' interest and their intention to undertake activities, (3) length of time devoted to a topic, its position early in the programme and its narration at conversational pace add to the impression made, (4) appearance of reality, association with living creatures and mobility contribute to effective recall.

8.A.136 *Intelligibility of Schools Television Programmes.*

ROYDS, A.

The British Journal of Educational Psychology, Vol. XXXII, Part 2, 1962, pp. 159-165. (U.K.)

Purpose:

To assess the intelligibility of schools television programmes.

Procedure:

Having viewed television lessons in elementary science, pupils did free writing exercises in which they set down what they considered the lessons had been about. Using word-counts as a measure in intelligibility and teachers' estimates of the teaching importance and the teaching function of the contents of the lessons, intelligibility of the subject matter was assessed by qualities of the statements recalled and set down in the pupils' exercises.

Conclusions:

It was concluded that the transmitted material was intelligible because the language used approximated to the standard used by the pupils in their free writing exercises, and the intelligibility of the subject matter appeared to be commensurate with the scaling by the teachers. Extension of the investigation with refinements in the measuring devices would be useful.

8.A.149 *Etude expérimentale d'une série d'émissions de télé-enseignement en mathematiques.*

(An Experimental Study of a Series of Programmes of Television Teaching in Mathematics.)

TARDY, M.

Revue de l'U.E.R., septembre 1961. (F)

Purpose:

To see if it is possible to teach mathematics by TV.

Procedure:

394 students (in classes of 6ième), chosen at random, took part in this experiment. The experiment consisted of twenty-four programmes broadcast twice a week. The subjects were divided into control groups (traditional teaching) and experimental groups (teaching with TV). Two questionnaires were given: the first in the middle of the experiment and the second at the end. The questions were divided into three groups: (1) new vocabulary; (2) arithmetic and measures; (3) comprehension. The (t) of the students was measured.

Conclusions:

The first results confirmed that direct teaching of mathematics by television is possible. No significant difference was found between the control group and the experimental group in vocabulary, arithmetic or understanding.

8.A.150 *La télévision directe et ses implications pédagogiques.*
(Live Television and its Pedagogical Implications.)
TARDY, M.
Ecole Normale Supérieure de Saint-Cloud, thèse de 3ème cycle, 1963, 356 pp. (F)

Purpose:

To compare the pedagogical efficiency of live television (kinescoped) and cinema. To study whether the subject is influenced by knowing that the programme is a live programme.

Subjects:

120 school children (eleven years) from the Lycée de Sèvres, divided into four experimental groups.

Procedure:

The experimental plan included two variables: the nature of the material (kinescoped versus film), the kind of presentation (televised broadcast versus a film projection). The two types of material were different from the point of view of the temporal structure (continuity versus discontinuity, the real length versus ellipsis) and the verbal message (language in the situation versus commentary, first and second person versus third person). The students took a preliminary test and five follow-up tests (vocabulary memorisation, attitudes towards the material comprehension of the content, ideas retained and the quality of the formulation). One question determined which of the students were aware of live TV. The results were compared with an analysis of variance.

Conclusion:

No significant difference was found in the respective effectiveness of live TV and film. However, the knowledge that the programme was live definitely had a favourable influence. It mainly affected memorisation of gestures, the attitude toward the message, the quantity and the quality of the ideas retained.

8.A.154 *Radio-Televisione e Ragazzi.*
(Radio-Television and Boys.)
TARRONI, E.
Guiseppe Malipiero Editore, Bologna, 1961, 210 pp. (I)

Purpose:

A study of the influence of radio and of television on boys.

Procedure:

Pupils of schools in Rome took part in this experiment over a period of three years.
Observation and control of the results was through questionnaires

and by means of personal visits where pupils listened to radio-television broadcasts.

Conclusions:

The work emphasised the great influence of television on basic education.

8.A.159 *Perception and Understanding of Instructional Television Programmes.*
VERNON, M. D.
British Journal of Psychology, Vol. XLIV, 1953, pp. 116-126. (U.K.)

Purpose:

To make some pilot studies of the reactions of viewers to certain representative adult education programmes.

Procedure:

There were three series of programmes, viz.:

(*a*) five half-hour talks on modern building, and town planning;

(*b*) two half-hour talks on contemporary political and international affairs;

(*c*) one forty-minute talk on the effects of extreme heat and cold on the body. Small groups of not more than ten or eleven were invited to observe one or more TV programmes, then to write a brief account of what they remembered. Thereafter they were asked questions about what had interested them or confused them. Seventy-six reports were obtained on series (*a*) from W.E.A. students, R.A.F. personnel and girls from sixth form grammar schools. Twelve and eleven respectively on series (*b*) and (*c*) from University students, mainly reading psychology.

Conclusions:

Visual and verbal content must be integrated into a single whole; a clear continuous and logically coherent verbal argument is essential to ensure understanding and remembering. The main points should be strongly emphasised and presented in the early part of the programme. The "impression of reality" created by some types of television material is exceedingly valuable in attracting and interesting the viewer; it seems to be the main factor in stimulating him to attend to the programme and to follow it.

8.A.160 *Fernsehen—Untersuchungen des Verhaltens von Kindern und Jugendlichen.*
(A Television Investigation: Children and Young People.)
WALTER, R.
Film Bild Ton, V. 3, 1955, München, 3 pp. (G)

Purpose:

This research studies the behaviour of children and adolescents watching television.

Procedure:

Eighty-nine children and adolescents (7-19 years) took part in this experiment. Fifteen small groups (each of 5-6 children or adolescents) were tested. They were sitting at a distance of two metres from the television set. The field workers could not be seen by the subjects. Most of the children or adolescents had never or seldom watched television before.

Conclusions:

Children from 7-9 years were very expressive. They had difficulties in concentrating in the beginning.
Children from 10-11 years were fascinated by television most of the time.

After seventeen minutes—on an average—children became restless. Young people from 18-19 preferred a combination of emotional and rational actions. They expected variety in performance. The young people became restless after about thirty-five minutes. Complete absorption did not occur.

8.A.163 *School Children and Television.*
WIDHE, J.; NORLING, S.
Statistiska centralbryåns utredningsinstitut, Barnfilmkommitten 1963, unpublished. (S)

Purpose:

To find out:
how often children look at television;
under what circumstances;
which programmes children watch;
children's reactions to programmes considered unsuitable for them;
the relation between interest in cinema and television.

Procedure:

After a research period of nine days the children filled in questionnaires.

Conclusions:

On Saturday evenings 92% of all children look at television, on other evenings 80%.

91% of all programmes are watched at home, 77% of these together with grown ups.

48% watch programmes considered unsuitable for children and of these 75% liked them quite well.

SECTION 9

TEACHING MACHINES

9.A.1 ***An Experiment with the Construction of Programmed Instruction Units.***

ANDERSSON, B. E. ; PARKNÄS, L. ; WALLIN, E.

Nordisk psykologi, No. 6, 1962. (S)

Purpose:

At the Institute of Education, University of Göteborg, a course in the theory of programmed instruction was given in the year 1961-1962. A short learning programme was constructed in order to observe empirically some of the difficulties in practical work with programme construction.

The programme is linear and of Skinnerian type and deals with geographical latitude and longitude concepts.

The article describes the development of the programme and the teaching machine that was used.

Procedure:

A first version with 100 frames was tested on sixty-two pupils in the Fifth grade of the elementary school. The time to complete the programme and the frequency of correct and incorrect responses were recorded. The average time per pupil amounted to seventy-five minutes and the percentage of correct responses was 76·4. Forty-four frames had a correct response frequency of over 80%.

A control group of fifty-six pupils were given more traditional instruction, but the average scores on a proficiency test did not show any significant differences between the two groups. One possible explanation may be the shortness of the instructional unit.

After revision a second version with 115 frames and six exercise frames was tested on sixty-one pupils in the Sixth grade. The average time per pupil was ninety-five minutes, the percentage of correct responses 89·9; ninety-five frames had a correct response frequency of over 80%.

The pupils were also tested with a proficiency test and an intelligence test. The correlation between the frequency of correct responses on the programme and the score on the intelligence was ·57, which is unsatisfactory.

Conclusion:

To find the items in the programme with high intelligence loadings the pupils were divided into two groups according to their results on the intelligence test; the 50% best in one group and the 50% poorest in the other. A great difference in correct response frequency between the "better" and the "poorer" group indicates that the items are too highly correlated with intelligence and should be revised.

9.A.5 *Automated Teaching in the United Kingdom.*

AUSTWICK, K.

Mechanisation in the Classroom, ed. M. Goldsmith, Souvenir Press, 1963, pp. 133-145. (U.K.)

Purpose:

To give an account of current research into programmed learning in Great Britain.

Reports are given of research projects at Universities:

Department of Psychology, University of Sheffield;
Department of Education, University of Sheffield;
Department of Psychology, University of Aberdeen.

Technical Colleges: Coventry Technical College.

Schools: Numbers of experiments are going on in a wide range of schools. Two are described:

1. three projects supported by a grant from Ministry of Education in a primary school in Leicestershire;
2. simple machines made by the headmaster of a school for educationally subnormal children in Kent.

Industry: Several machines are referred to with special mention of adaptive machines developed by Gordon Pask for Systems Research.

Services: The Royal Air Force School of Education at Uxbridge has developed a very flexible teaching machine which can use constructed-response or multiple-choice programmes.

9.A.6 *Zur Frage des Einsatzes von Lehrautomaten in der Konzentrationsschulung.*
(The Contribution of Teaching Machines in the Training of Concentration.)

BARTMANN, T.

Lehrmaschinen in kybernetischer und pädagogischer Sicht, München, 1963, 13 pp. (G)

Within the first part of his report the author gives a definition of the terms "Konzentration" (concentration) and "Aufmerksamkeit" (attention). Concentration means to him and to Mierke "a special performance and an optimum of volitional and fixed attention". He only regards the application of teaching machines useful for practicing concentration if the teacher succeeds in arousing the motiva-

tion of the students in the right way. In this connection the author discusses the difference between really weak concentration and merely disturbed concentration, which can be eliminated by means of education and which therefore could be examined in the context of teaching machines. Then the author studies concentration as a process and interpretations of the Gestalt school to the American theories and refers to the psychological side of the problem.

In the second part of his report the author discusses a test with forty boys and girls of the Sixth and Seventh forms of a German elementary school. This test was carried out with "Repetitor" teaching machines. The aim was to count the letters (Bourdon-test) and to find out words, and four additional questions concerning the attitudes of children towards teaching machines were asked. The results showed that the girls were more able to concentrate than the boys were and also that children enjoy working with teaching machines.

9.A.7 *Universal-Rechenautomaten als Lehrmaschinen.*
(Universal Calculating Machine as a Teaching Machine.)
BERGER, M.
Lehrmaschinen in kybernetischer und pädagogischer Sicht, 1963, München, 9 pp. (G)

The author starts with L. M. Stolurow's ten basic requirements for a teaching machine (L. M. Stolurow, Teaching by Machine, Cooperative Research, Washington, U.S. Government Printing Office, 1961) and then he divides teaching machines into the following categories:

1. Teaching machines with minimal or no adaptability (for example teaching cards);
2. teaching machines only partially adaptable (for example scrambled books);
3. teaching machines which are completely adaptable (for example electronic universal calculating machines).

The author explains the construction of a calculating machine (programme regulation, input, calculation, output, etc.) as well as its possibilities of application as a teaching machine. The first part of a programme for introduction of the information-measure "bit" is cited as an example for the construction of an instructional programme.

9.A.8 *Lernen und Denken nach Programm.*
(Learning and Thinking by Programme.)
BRUDNY, W.
Film Bild Ton, XIII, 10, 1963, München, 10 pp. (G)

From his own knowledge of education in the U.S.A., the author gives a survey of programming. He quotes a number of critical voices from the ranks of American educationists on the development of this kind of teaching method. Later in his essay the author describes in brief Skinner's theory and finally discusses the question of costs for programme production, its importance for industry and adult education as well as the range of applicability of audio-visual aids in programmed learning.

9.A.9 *The British European Airways Study.*

CAVANAGH, P. ; MORGAN, R. G. T. ; THORNTON, C.

Occupational Psychology, Vol. XXXVII, 1963, pp. 76-84. (U.K.)

Purpose:

To compare learning by Auto Tutor with classroom lecturing on a specially written programme for B.E.A. on the subject of load control. The investigation aimed to determine whether instruction by each of these methods resulted in significant learning, whether rates and amounts of learning were different, whether there was a relationship between intelligence and amount of learning and what the attitudes of the students were.

Procedure:

158 subjects, all B.E.A. employees, were used. All subjects were assessed on intelligence, arithmetical speed and accuracy, knowledge of load control. There were two groups, one of employees on a refresher course and one consisting of apprentices. Each day a small batch of subjects would be tested, divided into two groups matched for intelligence and load sheet knowledge; one group was given a one-hour lecture by the man who had co-operated in preparing this programme for the Auto Tutor, while the other worked on the programme to completion. Next morning all were tested, without knowing that they would be tested.

Conclusions:

Both the lecture and Auto Tutor groups learned significantly from their course of instruction and they learned to the same extent. The time taken by the Auto Tutor group to learn was about half that of the lecture group. The more intelligent benefited more from instruction whether by Auto Tutor or lecture and no claim can be made that the Auto Tutor minimises the effects of individual differences in intelligence in subsequent learning. Subjects using the Auto Tutor do not accept it uncritically.

9.A.11 *Die Redundanztheorie des Lernens und ihre Anwendung bei Lehrmaschinen.*

(The Redundance Theory of Learning and its Use in Teaching Machines.)

CUBE, F. VON

Lehrmaschinen in kybernetischer und pädagogischer Sicht, 1963, München, 10 pp. (G)

In order to show starting points for programming of instruction material based on information theory. The author treats the subject in four steps:

1. Definition of the terms information and redundancy;
2. outline of the "redundance theory" of learning ;
3. application of the "redundance theory" of learning to teaching machines;
4. educational implications.

The following classification for the programming of teaching machines follows the "redundance theory" of learning:

(*a*) Teaching machines achieve optimum effectiveness when learning according to "probability distribution".

(*b*) Teaching machines achieve optimum effectiveness with retention processes.

(*c*) Teaching machines achieve optimum effectiveness in producing symbols.

In the author's opinion the advantage of the teaching machine is the high degree of adaptability to the learner. The great disadvantage, however, is that the learner is isolated from his fellow students.

9.A.14 *Theorie und Praxis des Einsatzes von Lehrmaschinen.*
(Theory and Practice of Teaching Machines.)

DEUTSCH, J. R. H.

Lehrmaschinen in kybernetischer und pädagogischer Sicht, 1963, München, 10 pp. (G)

The author discusses the problems connected with testing the success of learning, and the construction of tests. Then he discusses how teaching machines can be applied and suggests the following five applications of programmed instruction:

1. in schools;
2. in self-instruction;
3. in factories and works;
4. in customer service;
5. in advertising.

The author discusses how the following aspects of programmed learning with teaching machines are studied: the intellectual level of the student and the extent of his knowledge before instruction, methods of testing the success of the instruction. Finally problems of cost and organisation are discussed.

9.A.17 *Programmierter Unterricht als pädagogisches Problem.*
(Programmed Instruction as a Pedagogic Problem.)

FLECHSIG, K.

Die Deutsche Schule, LV, 9, 1963, Berlin, 36 pp. (G)

The author begins his article with a report on the pedagogical discussion about programmed instruction in the U.S.A. and the reception these topics have found in Germany. He shows the diversity of definitions of programmed learning and describes the programmes of Skinner and Crowder. He then deals thoroughly with the arrangement of the topics in the programme and quotes authorities such as Homme, Glaser, Gilbert, Smith, etc. He also discusses the questions of teaching aids, feed-back, testing of programmes and suitable topics. In another section he deals with the theoretical background of programmed instruction, the theories of learning and new problems for pedagogics in connection with programmed learning.

9.A.18 *Das Sprachlabor im Fremdsprachenunterricht.*
(The Language Laboratory in Language Teaching.)
FOERSTER, O.

Film Bild Ton, XIII, 6, 1963, München, 4 pp. (G)

The author reports on experiments made at the Pädagogische Hochschule, Berlin, on the different uses of language laboratories and discusses the didactic and technical principles of fixed and mobile language laboratories.

Finally the author traces methods built on experience gained in the field of language laboratories.

9.A.19 *Programmierter Unterricht und Lehrmaschinen.*
(Programmed Learning and Teaching Machines.)
FOERSTER, O.

Film Bild Ton, XIII, 10, 1963, München, 5 pp. (G)

Report on the International Educational Conference held in the Congress Hall, Berlin, in July 1963. The conference was organised by the Pädagogische Arbeitsstelle, Berlin, and the World Confederation of Organisations of the Teaching Profession (WCOTP).

The author's report firstly treats the educational fundamentals, secondly, the mediators of programmed instruction, and finally gives a brief survey of the experiences and the researches made so far in the field of programmed learning. In his critical conclusion, the author stresses the permanent importance of audio-visual aids in the future development of technical media.

9.A.20 *Kybernetik und Lehrmaschinen.*
(Cybernetics and Teaching Machines.)
FRANK, H.

Lehrmaschinen in kybernetischer und pädagogischer Sicht, 1963, München, 14 pp. (G)

The author first develops and submits a definition of the word "cybernetics" and then he determines the position of cybernetics within education. To him pedagogics based on cybernetics is a relatively abstract part of the whole of education, a part which also forms a basis for the theory of instruction machines. He then discusses possibilities and effects of special and universal teaching machines as well as the problems connected with their application. The appendix describes four phases of preparation for programming.

9.A.21 *Kybernetische Grundlagen der Pädagogik.*
(Cybernetic Principles of Pedagogics.)
FRANK, H.

Internationale Reihe Kybernetik und Information, Band 2, 1962, Baden-Baden, 175 pp. (G)

The author discusses some of the doubts recently expressed regarding pedagogics as a science. He then gives a survey of the mathematical and psychological foundations of information-theory based on cybernetics, and discusses the practical consequences for pedagogics. Whitehead's principles of classification are presented, and the author finally attempts to show that pedagogics as a science will benefit greatly from information-theory based on cybernetics.

9.A.23 *Probleme des Programmierten Unterrichts.*
(Problems of Programmed Instruction.)
FURCK, C. L.
Zeitschrift für Pädagogik, IX, 4, 1963, 5 pp. (G)

The author confines his report to some special problems of programmed learning and its underlying theory. He describes the development of programmed learning as a result of the research in stimulus-response psychology carried out mainly in the U.S.A. Then he discusses the advantages of programmed learning compared with traditional methods, as well as the question of the role and importance of the machine in programmed learning. Finally he refers to the necessity of careful research work which should precede the over-optimistic and uninformed use of programmes.

9.A.24 *Research on Media for Individual Instruction—Teaching Machines and Programmed Learning—on Elementary Arithmetic for Mentally Retarded Children.*
GELDER, L. VAN
(Work in progress.) (H)

Purpose:

To collect data on the learning processes of mentally retarded children and to evaluate some media for individual instruction in elementary arithmetic for these children.

Procedure:

The research will be carried out with a homogeneous group of mentally retarded children of 8-11 years old. First a diagnosis will be made with intelligence tests and scholastic tests. The results will be measured with tests of the same scope.

This work is in progress as follows:

(*a*) An evaluation of the usefulness of the media for individual instruction: teaching machines and programmed learning;

(*b*) suggestions for further research on the learning-processes of mentally retarded children;

(*c*) suggestions for the formulation of hypotheses for future detailed research projects.

9.A.26 *Informationstheoretische Grundlagen künftiger Lehrmaschinen.*
(Principles for Future Teaching Machines.)
GUNZENHAUSER, R.
Lehrmaschinen in kybernetischer und pädagogischer Sicht, 1963, München, 9 pp. (G)

The report gives an outline of information theory and "Redundanz" theory as mathematical-cybernetic science for automated teaching and learning. The author quotes a series of results of research on the question of information-reduction by means of grouping and forming symbols. Finally he discusses the possible application of teaching machines within psychological testing.

9.A.27 *Roboter vor der Schultür?*
(Robots at the School Door?)
HEINRICHS, H.
Kamps pädagogische Taschenbücher, Band 17, 1963, Bochum, 159 pp. (G)

The author divides his book into two parts:
1. School television;
2. Teaching machines.

Ten chapters of the first part of the book discuss the relations between child and television and the possibilities of school television together with the opinions for and against.

The author also gives a survey of the present status of school television in the U.S.A. and Europe and discusses the question of school television and closed-circuit television, referring to the positive and negative aspects of these institutions. A description of a school television test follows, which was made by the Norddeutscher Rundfunk (North German Broadcasting). He also discusses the educational and organisational problems of using television in school lessons.

The second part of the book deals with the rational practice of programmed instruction. Various types of teaching machines are described and the cybernetic principles of future instruction theories are discussed.

9.A.28 *Kernprobleme der Lernpsychologie und des Programmierten Lernens.*
(Fundamental Problems of the Psychology of Learning and of Programmed Learning.)
HILGARD, E. R.
Die Deutsche Schule, LV, 10, 1963, Berlin, 12 pp. (G)

The author presented this report to the International Congress held in Berlin in 1963 on the subject: "Programmed Instruction and Teaching Machines". He outlines the development of the learning theories by Herbart, Hull, Skinner, Guthrie, etc., and discusses critically the limited role which programmed learning plays within the whole field of education.

9.A.29 *Psychologische Einführung in die Thematik von Lehrmaschinen und Programmiertem Unterricht.*
(Psychological Introduction to Teaching Machines and Programmed Learning.)
HOCHHEIMER, W.
Die Deutsche Schule, LV, 9, 1963, Berlin, 17 pp. (G)

The author discusses present-day educational problems from the view-point of the psychology of learning and also touches on the psychological and anthropological aspects of teaching machines and programmed instruction. Here he sees the difficulties of traditional instruction due to the great number of students and the shortage of teachers. The best-known theories of learning are discussed. The author tries to demonstrate the possibilities and limits of teaching machines and cites positive and negative opinions on the subject. Finally he discusses whether programmed instruction and teaching machines could contribute to "dehumanising" in education and refers to anthropological tendencies within cybernetics.

9.A.30 *Programming for Teaching Machines of a Course in Mathematics for the Seventh Year of the Compulsory School.*

JANSSON, S.; PETTERSSON, S. O.; SVENSSON, B.; LANE, G.
Pedagogiska Institutionen, University of Gothenburg, (unpublished). (S)

Purpose:

To gain experience of programming teaching machines and to study problems which could be the subjects of further research in connection with programming of this kind.

Procedure:

About 200 pupils from the seventh year of the experimental school took part in this work. The subjects were divided into eight classes of 20-35 pupils. The classes were also divided into two groups (A and B).

The programmed material was divided into series. When group A finished a certain succession of problems, these were corrected. The percentage of correct and incorrect solutions was calculated. Items with a percentage of errors exceeding a certain minimum level were revised. About ten days later the revised series was given in group B. After comparing the results of the two tests the value of the revisions could be established, and also which items needed further revision.

The number of problems solved by a pupil during a lesson was recorded and compared with the frequency of solution and the percentage of miscalculations. At the same time the speed with which the pupils solved the problems was recorded. The pupils were divided into "ability groups". These groups were compared as to the results of general intelligence tests, ability of reading and interpretation, attitude to the subject of mathematics and in several other subjects. The teacher assessed the behaviour of the pupils and his work with programmed teaching compared with the usual forms of teaching. Arithmetic tests that were the same for classes with and without programmed teaching were given. Certain items of the course were used as material for comparisons.

Conclusions:

1. This research is in progress and is attempting to measure the connection between the pupil's ability in making use of programmed teaching and his:
   - (*a*) general intellectual standard;
   - (*b*) general standard of knowledge;
   - (*c*) earlier knowledge of the subject;
   - (*d*) attitude to the subject;
   - (*e*) attitude to the teaching method;
   - (*f*) reading ability.
2. To establish the connection between these variables and the speed of work.
3. To give a certain basis for the judgment of the questions:
   - (*a*) if the same course can be used in all the "ability groups", or if the different "ability groups" ought to have different courses;
   - (*b*) if the teaching of other subjects can raise the standard of the knowledge of mathematics.

9.A.31 *"Programmed Teaching" bei der Mitarbeiterschulung.*
(Programmed Instruction in the Teaching of Fellow Workers.)
JESSEN, P.
Lehrmaschinen in kybernetischer und pädagogischer Sicht, 1963, München, 6 pp. (G)

The author describes an experiment carried out in a German factory to find out whether instruction of workers is possible by means of instruction-programmes. Four nouns and two verbs of a pseudo-language were learned as well as five sentences, formed by these words. The programme contained fifty-five frames and was submitted to a group of apprentices, secretaries and heads of departments. A homogeneous control group was given the material in the traditional way by speaking, repeating what was said, reading and writing. A couple of days after this experiment had been carried out, a control experiment was undertaken with all persons involved. The results showed that the heads of department and secretaries of the experimental group made less mistakes than those of the control group. The apprentices of the experimental group, however, made twice as many mistakes as the apprentices of the control group. From these results the author concludes: the apprentices learn more successfully with the traditional procedure, since they are probably less capable of studying on their own than older workers; the latter are more able to learn by themselves by means of programmed texts.

9.A.32 *Die Überwindung der Lernschwierigkeiten beim Selbststudium.*
(The Overcoming of Learning Difficulties in Private Study.)
KAMPMÜLLER, O.
Pädagogische Rundschau, XVI, 12, 1962, Ratingen, 12 pp. (G)

The author gives some hints on how to make self-instruction more economical, more individual, more reasonable and more successful. He treats the problems of place and time of study, of different types of learners, of curricula, as well as endurance and conscience. He bases his comments on examples from quotations by Goethe, Lichtenberg, La Rochefoucauld, Schopenhauer, Gracian, Nietzsche, Kandinsky, Macke and others.

9.A.35 *The Royal Air Force Study.*
KNIGHT, M. A. G.
Occupational Psychology, Vol. XXXVII, No. 1, 1963, pp. 68-75. (U.K.)

Purpose:

To compare the learning achieved by means of a teaching machine and normal classroom training, on completion of the course and three months later. The programme used was Tutor Film Foundations of Trigonometry.

Procedure:

Forty trainees undergoing advanced training in the radio engineering trade group of the Royal Air Force at Yatesbury were separated into two groups. Tests used in initial selection gave their average aptitude scores between 75th and 80th percentiles of the general population. Almost all had the same previous limited experience

of trigonometry, and the two groups were matched in pairs. The classroom group was taught the same contents as the Tutor Film. At the end of the training week both groups were given a trigonometrical knowledge test and were given a similar test thr e months later. All were given an attitude test.

Conclusions:

The results show that the Auto Tutor made a substantial saving in time required to teach a subject to a given level. The majority of the students appeared to like machine teaching but wished to have available skilled advice, which they missed by not having access to an instructor. The conclusions suggest that as teaching machines are now available consideration must be given to the reorganisation of training and to the role of the instructor.

9.A.38 *Anwendung von Lehrgeräten mit Magnettonband insbesondere im Sprachunterricht in Frankreich und der U.S.A.*
(The Use of Teaching Machines with Sound Tapes in Language Teaching in France and the U.S.A.)
LEY, E.
Lehrmaschinen in kybernetischer und pädagogischer Sicht, 1963, München, 3 pp. (G)

The author briefly describes one of the magnetic sound-outfits, which he developed himself for application within programmed language courses. It eliminates the two disadvantages of earlier equipment:

1. too many switching operations for the learner;
2. too much teaching material which the student has to compare with his own pronunciation.

9.A.39 *Die Situation des Programmierten Lernens in den U.S.A.*
(The Position of Programmed Learning in the U.S.A.)
LINDER, D.
Lehrmaschinen in kybernetischer und pädagogischer Sicht, 1963, München, 10 pp. (G)

The author outlines the development of programmed instruction in the U.S.A. and gives three main directions of activity in this field:

1. -Basic research in the field of programmed instruction;
2. development of programmed courses, ready for application;
3. development of the necessary equipment for programmed instruction.

9.A.41 *Die Lehrmaschine.*
(The Teaching Machine.)
ODENBACH, K.
Westermanns Pädagogische Beiträge, XV, 7, 1963, Braunschweig, 10 pp. (G)

The author comments briefly on the principles of the teaching machine by Pressey and Skinner and then justifies programmed learning psychologically and educationally. On the critical side he quotes Biehl's and Bartmann's objections to Skinner. Discussing the educational aspect, the author contrasts the theory of programmed learning with German "Reformpädagogik".

9.A.42 *Lernen ohne Lehrer.*
(Learning without a Teacher.)
RECUM, H. VON
Berufspädagogische Zeitschrift, XI, 10, 1962, Braunschweig, 13 pp. (G)

The author considers the use of technical aids in teaching as a sort of industrialisation process; in schools as well as in industry the machine will do all the routine tasks and thus liberate us for more interesting work. However, the author suggests that we should not speak of "helping the teacher with the machine", but of "dividing the work between teacher and technology". "Education" remains the teacher's concern, whereas instruction, training and exercise can be performed by technical means. The author explains that the process of teaching is not a mystical process ("mystischer Einheitsvollzug"), but is divided into the functions of mental communication and the formation of concepts and models on the one hand, and into the functions of mere information and routine practice on the other. Finally the author states that technical aids, by relieving the teacher, allow him to develop his potentialities.

9.A.45 *An Experiment in Programmed Instruction, Junior School Science.*
ROBERTS, J. D.
Educational Review, Vol. XV, 1962, pp. 118-130. (U.K.)

Purpose:

To investigate whether in using programmed instruction individual differences are important and what variables are operating.

Procedure:

A completed tested programme on the topic "The Air Around Us" was used in the form of a programmed text with cardboard slides. It had 200 frames. The individual differences selected for study were intelligence as measured by a standardised test, speed of working, social class as measured by father's occupation, ordinal position in the family, family size, age, sex, attitude. The subjects were 121 children, average age 10+ years in three co-educational junior schools situated in three contrasting areas of a large city. The work was done in three forty-five minute sessions, two on the programme and the third for testing. Using an electronic computer, means, standard deviations and inter-correlations were obtained.

Conclusions:

The more intelligent children made fewer errors and worked at a faster rate, which confirms earlier findings that programmes are not "intelligence-free". On the whole a positive attitude is shown to programming, but the more intelligent were less positive. The children of higher social class were the more intelligent in the sample and made fewer errors and took less time than those lower on the social scale. Children from larger families and later in ordinal position took longer to complete the programme.

9.A.46 *Der Programmierte Unterricht in der allgemeinbildenden Schule.*
(Programmed Instruction.)
SANDER, M.
Mars-Lehrmittelverlag, Bad Neuenahr, 94 pp. (G)

The author gives a practical introduction into the problems of programmed instruction. The book is written as a learning programme and shows examples of:

1. the linear programme;
2. the branching programme;
3. a comparison between these two methods.

Then follows a survey of the principles and functions of programmes and teaching machines and a discussion about using teaching machines and programmed school books. Finally the author discusses the importance of programmed instruction in education today.

9.A.47 *Programmierter Unterricht Heute und Morgen.*
(Programmed Instruction Today and Tomorrow.)
SCHRAMM, W.
Deutsche übertragen von H. Gutschow, G. Müller, O. Peters, K. Wagner, 1963, Berlin und Bielefeld, 63 pp. (G)

The first part of the book surveys the present status of programmed instruction. The author makes the following points:

1. Tests showed that there is much scope for improvement. At present, programmed instruction shows signs of inflexibility, partly caused by economical factors and partly by uncritical acceptance of theories and practices.
2. Programmed instruction can more effectively draw the attention of teachers to the learning process.
3. Programmed instruction can have a liberating effect and can relieve the teacher from his routine work.

The author traces out the future of programmed instruction and sets out the following aims:

1. To further experimental forms when making programmes;
2. to apply research on the theoretical foundations of programmed instruction;
3. to examine success in learning by means of tests;
4. to instruct teachers in the correct application of the programmed method;
5. to check the applicability of audio-visual means within programmed instruction;
6. to exchange results between countries participating in this development;
7. to provide information about programmed instruction.

The second part of the book gives a survey of research on programmed instruction and discusses the question of success in learning, the branching of programmes, the speed in learning, the various steps within the process of learning, the responses, etc.

9.A.48 *Die Forschung auf dem Gebiet des programmierten Lernens. (Research on the Subject of Programmed Learning.)*
SCHRAMM, W.
Die Deutsche Schule, LV, 9, 1963, Berlin, 14 pp. (G)

The report discusses the question of successful learning through programmed instruction and shows the characteristic forms of programmed instruction with their possible responses. Finally it discusses the possibilities of programmed instruction in science. The report also gives new information about the process of learning.

9.A.50 *A Study on Programming Swedish Grammar.*
STUKAT, K. G.
Institutet för programmerad undervisning, Göteborg, Sweden. (S)

The study describes the construction and preliminary testing of a programme of elementary Swedish grammar. An account is given of the following steps:

1. an outline of the general aim of the programmed course;
2. determination of the contents;
3. establishment of the specific goals in terms of desired student performance ("criterion frames");
4. construction of the programme frames;
5. testing of the programme.

The programme consists of 1,668 frames. It is a linear programme of the Skinner type with small steps, continuous students responses, immediate feedback and frequent repetitions as characteristic features.

At the trial on a reasonably representative sample of sixty-three pupils in Grade 7, the average error percentage on the training frames was fifteen and on the criterion frames at the end of the programme fourteen. An interesting finding was that the error percentage on a multiple-choice test that covered the same contents as the criterion frames was considerably higher, viz. thirty-two. This discrepancy may mean an important limitation in the transfer effects of the programme.

Attitude measures on three different occasions during the course reflected a marked decrease in the initial enthusiasm. At the end of the course, however, there was still a majority of students who had a positive attitude towards the new instructional method. Measures of the pupils' interest in different school subjects before and after the programmed instruction showed no change for the subject of grammar. For thirteen of the fifteen other subjects interest decreased during the period.

Correlations were computed between a number of variables shown by Table 4 in the text. Speed (=average number of frames per hour) correlated ·67 with intelligence when pupil performance on the initial grammar test was held constant by partial correlation. The corresponding coefficient for the final test of grammar and intelligence was ·39. The result suggests that with this kind of instruction the differentiation among students is manifested more by speed differences than by differences in level of performance. Classroom observations as well as the comments of students and teachers made

it clear that the applicability of programmed instruction is dependent on how a number of practical questions are solved. The machines should not be fragile but easy to handle, and there must be space to store them between the programme sessions. Loading and unloading the machines with programme blanks must take place without disturbing the class, and pupils who have finished their programmes must be given extra work. It is important to find out adequate routines for these matters, and to relieve the teacher from unqualified tasks.

9.A.54 *Kybernetik und Sowjetpädagogik.*
(Cybernetics and Soviet Teaching.)
VOGT, H.
Pädagogische Rundschau, XVII, 5-6, 1963, Ratingen, 16 pp. (G)

This is a report showing the development of cybernetics in Soviet teaching since 1954 and the reaction of Soviet educators to Skinner's programmed instruction.

The author discusses the efforts on the part of Soviet educators to find methods and organisational forms for teaching which guarantee absolute and reliable formation and control of the psychic processes of the learner. A condition for the success of such control is a teaching process with a good feed-back system; this can be made possible by a teaching machine.

Finally, the author describes the stage of development reached by programmed instruction and teaching machines in the Soviet Union, the development of teaching algorisms and the expansion of the range of application, mainly at Polytechnic Academies, and the lead of the Soviet Union in this field among the European countries.

9.A.55 *The Royal Navy Study.*
WALLIS, D. ; WICKS, R. P.
Occupational Psychology, Vol. XXXVII, No. 1, 1963, pp. 50-67. (U.K.)

Purpose:

To discover if (i) junior naval ratings, newly entered as electrical mechanics learn an academic subject as effectively from a self-instructional device as from a classroom teacher; (ii) there is anything to be gained from using a machine as distinct from a non-mechanical presentation.

Procedure:

Three groups, each of twenty-four comparable trainees, were independently taught the same course of trigonometry which had been prepared specifically for the Auto Tutor and is available as a "scrambled book" as a Tutor Text. The groups were matched for knowledge of arithmetic and algebra, ignorance of trigonometry and general intellectual level determined by a Navy battery test.

One group worked for nine days on the Auto Tutor, and were examined on the tenth. The second group worked in the same way on the scrambled book and the third group was taught for one hour periods for nine successive days. No one took notes or did any work outside the experimental periods.

Conclusions:

The results may be regarded as positive, giving quite definite answers to the questions posed. As far as an academic subject like trigonometry is concerned Naval ratings fresh from school learn just as effectively from a teaching machine as from a classroom teacher. Important though the actual programme is, the manner of presentation and the degree of control over a student's responses are significant factors. A machine like the Auto Tutor is a more effective instructional device than a "scrambled" book like the Tutor Text.

9.A.56 *Aspects of Programmed Instruction: I. Some Notions and Arguments; II. The Significance and Implications of Programmed Instruction; III. Some Psychological Principles underlying Programmed Learning; IV. Teaching by Machinery. (A Review of Research.)*

WILLIAMS, J. D.; CURR, W.; PEEL, E. A.; LEITH, G. O. M.

Educational Research, Vol. V, No. 3, 1963, pp. 163-199. (U.K.)

Purpose:

To provide an overall view of the theory and practice of programmed learning.

Procedure:

Each author has written authoritatively on one aspect of the subject.

Conclusions:

With many kinds of subject matter, and a variety of learners, programmed instruction has secured as good results as conventional methods and sometimes better results. This can be achieved without expensive machinery. Materials must be carefully prepared and tried out. The problems that remain are largely those of individual programmes and learners and those of adjustment by teachers and learners.

9.A.57 *Gibt es Einsatzmöglichkeiten von Lehrmaschinen an Volks- und Sonderschulen?*
(Can Teaching Machines be of use in Primary Schools and in Special Schools?)

ZIMMERMANN, R.

Lehrmaschinen in kybernetischer und pädagogischer Sicht, 1963, Stuttgart und München, 5 pp. (G)

After having given the definition of the word "Sonderschule" (special school) the author puts the question: Where can teaching machines be used and where not? Her answer to this question is: Teaching machines should be used specially during training lessons of any subject, but in some cases also in lessons of introduction; here, too, the teaching machine offers the possibility of working with small groups. In the author's opinion the teaching machine should never be used in lessons on local geography at elementary schools and in the lower classes of the "Hilfsschule" (special school). The author believes that the teaching machine can relieve the teacher of routine work and thus facilitate his educational task.

SECTION 10

MISCELLANEOUS

10.A.8 *A Psychological Study of Typography.*
BURT, C.
Cambridge University Press, 1959, 68 pp. (U.K.)

Purpose:

To investigate the legibility and the aesthetic merits of those type faces in more frequent use.

Procedure:

Using tests of speed and accuracy supplemented by observations of eye movements, blinking and other symptoms of eye strain, an attempt was made both with children and adults to determine the relative legibility of different styles of printing, observing the influences of typeface, boldness, size, interlinear spacing, length of line and width of margin. Using factorial methods supplemented by an analysis of introspections, a classification was made of both readers and type faces based on aesthetic preference.

Conclusions:

On the whole, Old Style Antique appeared most appropriate for children under the age of twelve; Imprint, Plantin or Times New Roman for those over twelve. With adult readers wide variations seem permissible without greatly affecting efficiency of reading. Introspective data obtained in experiments on typographical preferences disclose complex motivation—customary reading and cultural preferences play an important role.

10.A.20 *Theorie der Massenmedien.*
(Theory of Mass Media.)
FELDMANN, E.
Ernst Reinhardt Verlag, 1962, München. (G)

Purpose:

Research and systematic survey of films and television science in Germany.

Procedure:

Selection and evaluation of fundamental research work and its results in order to produce a systematic survey of communication (including mass-communication). This publication gives a survey of film and television from the point of view of a critical realistic philosophical method.

No empirical measurements were taken; comparisons were made between qualitative and quantitative methods.

Conclusions:

Film and television and other communications have their own importance and position in the system of science. They do not belong to sociology alone nor to journalism.

The author believes that scientific disciplines such as sociology, psychology, physiology, etc. should find their own fields of research within films.

10.A.52 *Design for Projection: A Study in Legibility.*
OLLERENSHAW, R.
Photographic Journal, Vol. CII, No. 2, 1962, pp. 41-52. (U.K.)

Purpose:

To report on ten years of empirical study of the problems of legibility in presenting projected material in the lecture theatre.

Procedure:

The "camera-character" of the eye is discussed, with reference to legibility in terms of the resolving power of the eye. On the basis of this discussion an analysis is made of lettering designed on Snallen's principle: the significance of the layout of the lecture theatre; illumination; the inter-linking of subtense angles, brightness, contrast and colour, detail of form, and the time of exposure; type design, upper or lower case; the choices of type for projection; layout; typefaces and viewing; illustration design; economics; honesty of presentation in graph design.

Conclusions:

It is doubtful whether full agreement will ever be reached on the subject of design, because type design, pattern, personal response to colours, "pre-knowledge" of difficult topics, even the dullness or otherwise of the lecturer, are bound to affect responses.

10.A.54 *Peripheral Vision, Refractoriness and Eye Movements in Fast Oral Reading.*
POULTON, E. C.
British Journal of Psychology, Vol. LIII, Part 4, 1962, pp. 409-419. (U.K.)

Purpose:

To determine the effect of reducing the size of the "window" in controlled reading apparatus (such as films) for increasing the speed of reading, and of varying its speed of movement.

Procedure:

Naval ratings, twelve different subjects for each part of this study, read typescript aloud through a window whose speed and size varied systematically in different trials. Eye movements were recorded electrically. Experiment 1 was designed to show the effect of reducing the size of the window while holding its speed constant; Experiment 2 to show the interaction between size of window and its speed of movement; Experiment 3 to determine whether practice can improve ability to read through small windows and Experiment 4 to show the effect of small windows on frequency of fixations and regressions.

Conclusions:

Errors increased significantly as the window was reduced from a full line to five words. Regressions were unaffected. This is a serious criticism of the reading films using windows to "improve" the reading speed of adults. Errors rose steeply to 40% as the time for which letters were exposed fell from ·3 to ·2 seconds; fixations did not increase in frequency. Thus, in reading, the visual system behaves like a single shot camera, firing at not more than about five times per second.

10.A.61 ***Schulkinder unter dem Einfluss der Massenmedien.***
(School Children under the Influence of Mass Media.)
RUPPERT, H.
Beiträge zur Schulpädagogischen Tatsachenforschung No. 3, Verlag der Pädagogischen Hochschule, Weilburg, 16 pp. (G)

Purpose:

This research registers how far mass media (film and television) are important as an educational means.

Procedure:

3,896 children took part in this experiment; questionnaires, interviews and depth interviews were used.

Conclusions:

Most of the pupils (nearly two-thirds) see a film every two weeks. They choose a film
(*a*) by the title;
(*b*) by the actors;
(*c*) by the recommendation of friends.
Hardly any of the children and young people are concerned about the quality of a film. Children up to thirteen years prefer television. Young people over thirteen prefer the cinema. About 70% of all children between eight and fourteen years watch television programmes which are intended only for adults.

10.A.66 ***Film und Fernsehen im Studienplan der Pädagogischen Hochschulen und in der Lehrerbildung.***
(Film and Television in the Curriculum of Training Colleges and in Teacher Training.)
VOGG, G.; PROKOPP, E.
Wissenschaftliches Institut für Jugendfragen in Film und Fernsehen, München 1961, 56 pp. (G)

Purpose:

Survey of audio-visual aids research in Bavaria and Austria.

Procedure:

Youth-groups, school-classes, young people in Bavaria and Austria took part in this experiment; interviews and questionnaires were used.

Conclusions:

Children up to fourteen years like television. 66% of all children watching television sometimes see programmes that are intended for adults. Children from 10-12 years spend three hours a week on children's programmes, children from 13-15 spend only twenty minutes a week on children's programmes. About 20% of all 10-14-year-old children watch the evening programmes after 9 p.m. 1,500,000 children from 6-12 years watch the evening programmes. Film and television education are part of general education. Therefore it is essential that student teachers know of the possibilities and dangers connected with film and television.